PNUE

UNITED NATIONS ENVIRONMENT PROGRAMME
MEDITERRANEAN ACTION PLAN

MAP

SAFEGUARDING MEDITERRANEAN BIODIVERSITY

REGIONAL ACTIVITY CENTRE FOR SPECIALLY PROTECTED AREAS

TOWARDS SUSTAINABLE DEVELOPMENT IN THE MEDITERRANEAN

FOREWORD

The Mediterranean Sea possesses a biological diversity that is particularly striking, with a very high rate of endemism. Its Quaternary history shows us that this Sea was an important area for speciation, i.e. the formation of new species; therefore, their disappearance in the Mediterranean bringing about their extinction as regards planet earth.

The conservation and sustainable use of this natural heritage are among the main objectives that the countries of the region have set themselves as part of the MAP (Mediterranean Action Plan) .

Today, the conservation of biological diversity is one of the main elements of the MAP. The texts that have emerged from the process of reviewing the Barcelona system emphasize this trend: Section 2 of MAP phase II and the new Protocol related to specially protected areas and biological diversity, are devoted to this.

This Protocol, for coordinating the implementation of which the Regional Activity Centre for Specially Protected Areas (RAC/SPA) is responsible, has as its main object the protection, preservation and sustainable management of species of particular natural or cultural value, and of animal and plant species which are endangered or threatened, by creating specially protected areas and measures to protect and manage the species with a view to maintaining them in a favourable state of conservation.

Within this framework, several initiatives for the conservation and sustainable use of the natural heritage have been introduced. Many tools have been elaborated to help the countries inventory the constituent elements of biological diversity, action plans have been prepared for the conservation of threatened species, and much direct help has been given to countries to identify and create protected areas and also to improve the management of existing protected areas. Making a List of Specially Protected Areas of Mediterranean Interest is one of the main new elements of the MAP. On this List appear protected areas that have natural features of regional interest and that possess adequate protection and management systems.

But rapid socio-economic development has increasingly exacerbated the pressures operating on the Mediterranean and its coasts, and despite all the efforts made and initiatives introduced for conservation, we can still see that vital habitats are being degraded and vulnerable species are dwindling.

Cooperation between the MAP and other international and regional governmental and non-governmental organisations to coordinate their initiatives and for a better use of the available skills and resources for the conservation of biodiversity is being handled with a great deal of attention by the MAP Secretariat, which hope to contribute to improve regional governance in this field.

Only be stepping up such cooperation, with joint action by the countries that border on the Sea, more standardized data collection, research to enrich knowledge, and the effective implementing of measures of protection in the field can we in the future more efficaciously conserve the priceless natural heritage of the Mediterranean.

The Coordinator of MAP/MEDU
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INTRODUCTION

Its particular ecosystem features and the numerous endemic species which populate its marine and coastal natural environment make the Mediterranean Sea an ecoregion. Although this Sea represents only 0.8% of the earth's total sea and ocean area, it contains 12% of described species of marine fauna and flora.

Being subject to heavy anthropic pressure, which has grown constantly over the centuries since classical times, the Mediterranean, with its ecosystems and its rich biological diversity, has become increasingly fragile and vulnerable. Today, several endemic species have become rare and are facing extinction. Some natural areas have already been destroyed and others, which have an important ecological role, are being threatened. This is so for a significant proportion of Mediterranean wetlands, which are on the Ramsar Convention List and the Montreux Register.

Since 1985, the Mediterranean countries, aware of the dangers threatening Mediterranean ecosystems, have elaborated a Protocol within the framework of the Barcelona Convention for protecting ecosystems and marine and coastal biodiversity by establishing protected areas. After the 1992 Rio Meeting, this Protocol was replaced by a new, more operational, one to respond to the conclusions of the Convention on Biological Diversity.

This Protocol, which came into force in 1999, goes beyond the principles and good intentions stipulated in the various international and regional legal tools for the Mediterranean.

It recommends concrete protection measures for safeguarding the elements of biological diversity via specific action plans and technical inventorying tools. This Protocol recommends establishing transboundary protected areas in zones that come under the sovereignty of different states and in the open seas.

Supported by the framework of solidarity and North-South partnership offered by UNEP's Mediterranean Action Plan, progress is being made in the rigorous application of the provisions of this Protocol and its additional tools.

At present, there is a need to speed up implementation of the Protocol, since the attack on the Mediterranean natural heritage is being stepped up.

Will the countries attain their aim and safeguard this inheritance?

The following chapters try (i) to present the situation as regards Mediterranean biological elements and their ecosystems, (ii) to provide greater detail on the measures recommended by the countries of the area to resist the attack on, and threats to, marine and coastal biological diversity, and (iii) to identify the challenges that countries are facing to ensure the sustainable protection of biological diversity.

1. THE MEDITERRANEAN SEA

The Mediterranean Sea is a peculiar basin characterised by a temperate water, a higher salinity compared to the Atlantic Ocean and a general scarcity of nutrients; the surface water layer (0-100 m) is oligo-trophic, due to the poor input of water (and therefore nutrients) from rivers and run-off. In the Mediterranean, semidiurnal tides do occur, though their amplitude, with some exceptions, is generally small (30-40 cm) by world ocean standards (Figure 1).
The Mediterranean fauna and flora seem particularly rich; the number of animal species currently inventoried (strictly marine and brackish lagoon species) can be estimated at about 8,000 species,.around 12,000 including, macrophytes, bacteria, *Cyanobacteria*, *Diatomophyceae* and *Dinophyceae*.
The Mediterranean Sea may be considered as a hot spot of marine species diversity.
The reasons for the general richness of Mediterranean flora and fauna are to be found in both the coexistence, in the Mediterranean, of species from the warm and boreal Atlantic, the tropical Atlantic and the Indo-Pacific, and its exceptional rate of endemism. In particular, the western Mediterranean appears to be an active centre of endemism.
The distribution of this biodiversity is not homogeneous within the Mediterranean. The Species diversity in the western Mediterranean is greater than in the eastern Mediterranean. Within the eastern Mediterranean, biodiversity is greater in the Aegean Sea than in the south and the Levantine basin.
Between forty and almost two hundred communities (assemblages, biocenoses or ecosystems) have been describ-ed in the Mediterranean, their number depending upon the authors, the definition they adopted for the concept of community and the method they used for community delineation.
Among the most characteristic communities of the Mediterranean, we should mention the *Lithophyllum lichenoides* rims, the *Posidonia oceanica* meadows, and the "Coralligenous community".
For centuries, the Mediterranean Sea and its shores have been subject to ever-increasing pressure from various sources. Broadly speaking, the recorded negative impact on biodiversity is in some way or another related to the demographic increase, including the physical occupation of space, production of liquid and solid waste, incres-ed exploitation of resources, etc. There is also tourism and shipping, which cause various forms of degradation of the marine environment, and have a direct negative effect on species and their habitats.
These activities mainly affect the continental shelf, more particularly the infralittoral zone (from the sea level to 30-40 m depth).

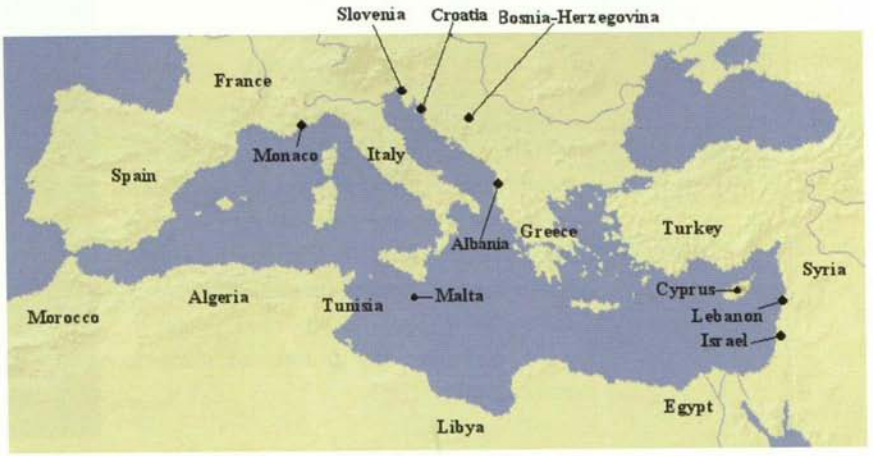

Figure 1:
The Mediterranean Sea is a semi-enclosed basin connected with the Atlantic Sea by the Strait of Gibraltar and with the Red Sea by an artificial canal.

ECODIVERSITY IN THE MEDITERRANEAN

The Mediterranean communities can be divided from top to bottom into five zones (supralittoral, mediolittoral, infralittoral, circalittoral, and bathyal).
Among the most characteristic communities of the Mediterranean we should mention, for the mediolittoral zone, the *Lithophyllum lichenoides* rims, for the infralittoral zone the *Posidonia oceanica* meadows, and for the circalittoral zone the "Coralligenous community".

The Lithophyllum byssoides rim

The incrusting coralline *Lithophyllum byssoides* (Rhodophyta), previously known as L. *lichenoides* and L. *tortuosum*, lives at the bottom of the mediolittoral zone, i.e. slightly above mean sea level. The rim consists of a wide overhanging cornice with a flat or slightly depressed upper surface, ending in a salient rim with a vertical face . The building up of a *Lithophyllum byssoides* rim requires several centuries, even more than a thousand years, and a relatively stable (or just very slowly rising) sea level.

The Posidonia oceanica meadow

Posidonia oceanica meadows develop in the infralittoral, between the mean sea level and a depth of 25-40 m (according to water limpidity), and on soft as well as hard substrates. *Posidonia oceanica* meadows are thought to be the most important ecosystem in the Mediterranean : (i) The mattes stabilise the sediment. (ii) The meadows temper the water movement (waves, swell) and help protect the beaches. 10 to 70% of the water movement is weakened by *Posidonia* meadows. (iii) The net primary production is considerable; it is the origin of a very rich food web. Much of this production is exported to other ecosystems, in particular to the circalittoral and the bathyal. (iv) It is (together with the coralligenous community) the main hot spot for species diversity in the Mediterranean. Almost 20% of all known Mediterranean species, i.e. several thousand species, have been sighted in *Posidonia* meadows. (v) It is a spawning ground and nursery for many species.

Photo : G. Pergent © RAC/SPA

Photo 1 - By trapping the sediment, the matte formed of intertwining rhizomes and roots (that are very little putrescible), and the sediment which fills in the interstices can rise at speeds of between 1 metre a century to 1 metre a thousand years. In addition, mattes are a sink for nutrients and carbon.

Photos 2,and 3 -:
Among the juveniles inhabiting *Posidonia* meadows there are many species of fish of economic interest.

The coralligenous community

The coralligenous community is a biogenic construction. It is mainly composed of crustose corallines (*Rhodophyta*) belonging to the genera *Lithophyllum* and *Mesophyllum* and by *Bryozoa* It develops in sciaphilic biotopes, at a depth of between 20 and 70 m (up to 130 m in the eastern Mediterranean), either in "rims" (up to 2.5 m wide) in tiers along vertical walls, or as big rolls at the foot of the walls, or again as tables on the sub-horizontal substrates.

After the *Posidonia oceanica* meadows, the coralligenous community constitutes the second most important hot spot of species diversity in the Mediterranean. Due to the large sponges, gorgonians and bryozoa it harbours and to the variety of their bright colours, the coralligenous community offers some of the most spectacular and most characteristic underwater scenery in the Mediterranean. As such, it constitutes the main diving sites in the Mediterranean and is therefore of great economic importance.

Photo 4 -
The flora and, especially, fauna of the Coralligenous community are very rich, with many endemics.

2. LEGAL INSTRUMENTS APPLICABLE TO THE MEDITERRANEAN

The Mediterranean Sea is a vulnerable ecological unit, whose protection requires the joint action of its riparian countries. In the world, it is the region covered by the greatest number of international instruments respecting nature conservation. However, the only one that is specific to the Mediterranean and is applicable to the whole of the Sea and its biological diversity is **the Barcelona Protocol.**

One of the few provisions of the UN Convention on the Law of the Sea which relates to the conservation of biological diversity is Article 194.5, which places an obligation upon states to take the measures "necessary to protect and preserve rare or fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life."

This provision was subsequently taken up, with slight modifications, in a number of conventions on regional seas concluded under the auspices of the United Nations Environment Programme[1] . However, the same was not true of the Barcelona Convention of 16 February 1976, the earliest of these Conventions, whose initial objective was limited to protecting the Mediterranean from pollution. Nevertheless, the coastal states of the Mediterranean rapidly made up for this deficiency by adopting on 3 April 1982 in Geneva, the Protocol concerning Mediterranean Specially Protected Areas .

The Geneva Protocol was particularly innovative at the time it was adopted, being the first treaty to address the issue of the conservation of natural areas within a marine region which constituted an ecological unit[2] .

In 1995, in order to face up the Rio Earth Meeting conclusions (1992), the Parties to the Barcelona Convention decided to amend the Convention for it to permit the establishing of the necessary legal basis for adopting of a new instrument that would replace the Geneva Protocol. **A new Article (10) to the Barcelona Convention was adopted, entitled "Conservation of biological diversity", which establishes that the Parties are obliged to take, individually or jointly, "all appropriate measures to protect and preserve biological diversity, rare or fragile ecosystems, as well as species of wild fauna and flora which are rare, depleted, threatened or endangered and their habitats".**

At the same time, on 10 June 1995 in Barcelona, the Parties to the Barcelona Convention adopted a n**ew Protocol concerning Specially Protected Areas and Biological Diversity** in the Mediterranean, which, when it comes into force, will replace the 1982 Protocol, the scope of which was limited to the creation of protected areas. The main objective of the 1995 Protocol is to protect, preserve and manage in a sustainable and environmental-sound way areas of particular natural or cultural value and threatened or endangered species of flora and fauna (Article 3.1), by establishing specially protected areas and adopting measures to protect and manage species

1 These are the following instruments: the Convention for Cooperation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region, Abidjan, 23 March 1981 (Article 11); the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region, Cartagena de Indias, 24 March 1983 (Article 10); the Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region, Nairobi, 21 June 1985 (Article 10); and the Convention for the Protection of the Natural Resources and Environment of the South Pacific Region, Nouméa, 25 November 1986 (Article 14).

2 It was followed in this respect by the Nairobi Protocol (1985) for Eastern Africa, the Paipa (Colombia) Protocol (1989) for the South East Pacific and the Kingston Protocol (1990) for the Caribbean. It would appear that no Protocols have yet been concluded establishing protected areas in the context of the Abidjan or Nouméa Conventions. The Nairobi and Kingston Conventions also contain lists of species which their Contracting Parties have undertaken to protect.

with a view to maintaining or restoring them to a favourable state of conservation. The Protocol may be considered to be a regional instrument which applies both Article 194.5 of the UN Convention on the Law of the Sea and the Convention on Biological Diversity. The new Protocol is applicable to all the marine waters of the Mediterranean, irrespective of their legal condition, as well as to the seabed, its subsoil and to the terrestrial coastal areas designated by each Party, includ-ing wetlands (see Chapter 3 for further information on the Protocol).

The Regional Activity Centre for Specially Protected Areas (RAC/SPA) was set up in 1985 with the aim of assisting Mediterranean countries to implement the Protocol. Within the framework of the Protocol, to date, four Action Plans have been elaborated by RAC/SPA and adopted by Mediterranean countries.

Other international legal instruments applicable to the Mediterranean

THE ACTION PLANS WITHIN THE FRAMEWORK OF THE BARCELONA CONVENTION

RAC/SPA prepared 4 action plans for the conservation of species or group of species, adopted by the Mediterranean countries within the framework of the Barcelona Convention:

- Action Plan for the management of Mediterranean monk seal
- Action Plan for the conservation of Mediterranean marine turtles
- Action Plan for the conservation of cetaceans in the Mediterranean Sea
- Action Plan for the conservation of marine vegetation in the Mediterranean Sea

Talking the conservation of a species or group of species by means of a plan elaborated with the participation of all the concern-ed actors, setting the precise objectives and priorities and planning shor-, medium and long-term actions, is an approach which has proved productive.

Although they are not legally binding, these action plans constitute a regional strategy, setting out the priorities and activities to be undertaken. They call for greater solidarity and coordination between the Mediterranean countries to protect the species covered, foster cooperation between Mediterranean countries and promote the exchange of information.

In addition to the Convention on Biological Diversity (Rio de Janeiro, 1992) the following main Universal Conventions concern Mediterranean countries:

CONVENTIONS	MEDITERRANEAN COUNTRIES PARTIES TO THE CONVENTION
The Ramsar Convention (Ramsar, 1971)	Albania, Algeria, Croatia, Egypt, France, Greece, Israel, Italy, Malta, Morocco, Slovenia, Spain, Tunisia, Turkey and Yugoslavia.
The Protection of the World Cultural and Natural Heritage (Paris, 1972)	Albania, Algeria, Croatia, Cyprus, Egypt, France, Greece, Italy, Lebanon, Libyan Arab Jamahirya, Malta, Monaco, Morocco, Slovenia, Spain, Syrian Arab Republic, Tunisia, Turkey and Yugoslavia.
The CITES (Washington, 1973)	Algeria, Cyprus, Egypt, France, Greece, Israel, Italy, Malta, Morocco, Monaco, Spain, Tunisia and Turkey.
CMS Conservation of Migratory Species of Wild Animals (Bonn,1979)	France, Egypt, Israel, Italy, Monaco, Morocco, Spain, Tunisia and the European Union.
The International Whaling Convention (Washington, 1946)	France, Monaco and Spain.

Other regional instruments are:

The Algiers Convention

The African Convention on the Conservation of Nature and Natural Resources was signed in Algiers in 1968[3].. The Parties are obliged to establish and maintain protected areas and to protect certain species totally or partially.

The Bern Convention

The Convention on the Conservation of European Wildlife and Natural Habitats was signed in Bern in 1979[4]. The Parties undertake to fully protect the wild flora and fauna species listed in Appendices I and II and to regulate the use of the wild fauna species specified in Appendix III. They are also obliged to protect the habitats of these species, as well as endangered natural habitats.

The European Directives

The European Union is a Party in its own right to several Conventions for the conservation of nature which are applicable in the Mediterranean, particularly the CMS and Bern Conventions. It has adopted two Directives[5], whose main objective is the application of these Conventions by its Member States. The 1979 Directive on the Conservation of Wild Birds provides total protection to all birds living in the wild in the European territories of Member States, with the exception of a small number of species for which hunting is authorized.

The 1992 Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora lists the species of Community interest, other than birds, which Member States are obliged to maintain or restore to a favourable conservation status and which require strict protection (Annex IV).

ACCOBAMS - A COOPERATIVE TOOL FOR THE CONSERVATION OF THE BIODIVERSITY IN THE MEDITERRANEAN AND BLACK SEAS

November 24th 1996, twenty-two countries and the European Community negotiated in Monaco the Agreement on the Conservation of Cetaceans of the Black Sea, the Mediterranean Sea and the Contiguous Atlantic Area, under the auspices of the CMS. The agreement itself was signed by 14 riparian states. ACCOBAMS entered into force on 1st June 2001.

This Agreement is one of the tools for conserving of biodiversity in the Mediterranean and Black Seas. It was intended as a complementary perspective with other tools available in the region, in particular the Barcelona and Bucharest Conventions. Due to the particular migratory characteristics of these species, the Bonn Convention was the *ad hoc* frame linking those intergovernmental tools.

At subregional level, the signing on November 25th 1999 by France, the principality of Monaco and Italy of an agreement establishing a sanctuary for marine mammals could be considered as the first combined implementation of ACCOBAMS.

1 Albania, Croatia, Cyprus, Spain, France, Greece, Georgia, Italy, Monaco, Portugal, Tunisia, Bulgaria, Morocco, and Romania.

3 The Mediterranean countries, which are Parties to the Algiers Convention are: Algeria, Egypt, Morocco and Tunisia.

4 The Mediterranean countries that are Parties to this Convention are: Cyprus, France, Greece, Italy, Malta, Monaco, Spain, Tunisia, Turkey and the European Union. Morocco has been invited to adhere to the Convention.

5 A Directive binds Member States with regard to the objectives to be achieved, while leaving them free as to the means chosen to achieve these objectives. It therefore creates obligations as to results.

Regulating fishing in the Mediterranean

Sustainable use of the biological resources of the Sea is addressed in very broad terms by the UN Convention on the Law of the Sea, which establishes a double objective : optimum use of biological marine resources, and preventing their over-exploitation. Fishing agreements are the instruments for achieving these objectives.
Since exclusive economic zones have not generally been established in the Mediterranean, most of the Sea is considered to be the high seas, where fishing can only be regulated by international agreements.

The Agreement establishing the General Fisheries Council for the Mediterranean (GFCM)

This Agreement establishes, within the framework of the FAO, a General Fisheries Council for the Mediterranean, which aims at promoting the development, conservation and management of living marine resources.

Photo : Relimi © RAC/SPA

Photo 5 - Tuna purse seine

The International Convention for the Conservation of Atlantic Tunas (ICCAT)[6]

This treaty, signed in Rio de Janeiro in 1966, regulates the fishing of tuna and tuna-like fish in the Atlantic Ocean, including the adjacent Seas.

Photo : © RAC/SPA

Photo 6 -
The pelagic fish
Seriola dumerili
Greater amberjak

6 Of the Mediterranean coastal states, only France, Morocco and Spain are Parties to this Convention. There is, however, a mixed GFCM/ICCAT working group and the GFCM has taken up the relevant recommendations of the ICCAT.

3. THE SPA PROTOCOL, AN APPROPRIATE TOOL FOR IMPLEMENTING THE CONVENTION ON BIOLOGICAL DIVERSITY AT MEDITERRANEAN LEVEL

The objectives and the principles which underline the Convention on Biological Diversity and the Barcelona Protocol are very similar. These treaties both aim at the conservation of biological diversity and the sustainable use of its components, the former at global level and the latter in a territorial area restricted to the Mediterranean. Admittedly, the Convention is much broader in scope than the Protocol, since it deals with matters such as access to genetic resources, the right to intellectual ownership of these resources and transfer of technology, on which a global consensus has been necessary. However, with regard to the conservation of biological diversity itself, the Convention can only establish general obligations, since effective conservation measures at local level require a regional approach, which alone can be adapted to the specific features of each region.

The Convention must therefore be considered (together with the few provisions of the Convention on the Law of the Sea which relate to the conservation of the natural environment and the introduction of alien species) as a general legal framework within which the Barcelona Protocol is the only instrument for implementing the Convention regarding the conservation of biological diversity throughout the Mediterranean.

The Protocol reflects the determination of the Mediterranean coastal states to preserve the biological diversity of the Mediterranean Sea and, to do so, to accept obligations which are considerably more detailed and binding than those contained in the Convention as regards to the conservation of natural areas and wild species.

In the Convention, the conservation of biological diversity is principally based on conservation *in situ*, the importance of which is emphasized in the Preamble to the Convention. That is also one of the principal objectives of the Protocol and of the network of Specially Protected Areas of Mediterranean Importance that it establishes on the basis of common and binding criteria for its Parties.

The protection of threatened species, in respect of which the Convention only establishes general obligations, is also one of the major objectives of the Protocol.

Finally, the Convention and the Protocol both establish a framework for cooperation between the Parties for the conservation and sustainable use of biological diversity.

However, even though the Protocol is clearly the best placed instrument for implementing the Convention on Biological Diversity throughout the Mediterranean, the other legal instruments applicable in this region will continue to play an important part, either because they reinforce the visibility of conservation measures for certain natural areas (as is the case of the Ramsar and World Heritage Conventions), or because they address matters which are not dealt with by the Protocol, such as the international trade in threatened species (which is only regulated by the CITES), or finally because, covering certain specific specie (the Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area, and the Agreement on the Conservation of African-Eurasian Migratory Waterbirds), they are specialized instruments which appear better placed than the Protocol to constitute the most effective forum for organizing the cooperation that is necessary for conserving these species.

The Convention on Biological Diversity and the Barcelona Protocol contain the same definition of biological diversity and are both founded on the same conservation principles. However, taking into consideration the specificity of each instrument, the nature of their binding forces are different.

Binding force

Most of the substantive obligations set out in the Convention with regard to the conservation and sustainable use of biological diversity are qualified by the formula "as far as possible and as appropriate", or equivalent terms. The Convention does not oblige Parties to follow a specific conduct but enjoins them to achieve specific results within the context of national circumstances. Such obligations are understood to be as binding as obligations of conduct. Due to its limited geographical scope, the Protocol sets out obligations that focus more on specific conduct.

General obligations

Identification and monitoring

The Convention places an obligation on the Parties to identify and monitor the components of biological diversity that are important for its conservation and its sustainable use (Article 7(a)(b) and (d)).

Article 3.3 of the Protocol contains a very similar provision to that of Article 7(a) of the Convention. The Parties must identify, and compile inventories of the components of biological diversity that are important for its conservation and sustainable use. Article 3(5) of the Protocol obliges the Parties to monitor the important components of biological diversity that have been identified[7] .

Furthermore, the Protocol contains specific provisions on the inventories of the areas and species which require protection measures. Each Party is therefore obliged to compile comprehensive inventories of areas over which they exercise sovereignty or jurisdiction that contain rare or fragile ecosystems, that are reservoirs of biological diversity or that are important for threatened or endangered species (Article 15(a)). Each Party is obliged to compile comprehensive inventories of species of fauna or flora that are endangered or threatened (Article 15(b)).

Processes that destroy biological diversity

The Convention on Biological Diversity establishes the obligation for its Parties to identify the processes and categories of activity which have, or are likely to have, significant adverse impacts on the conservation and sustainable use of biological diversity (Article 7(c)), to monitor the effects of these processes and activities (Article 7(c)) and, finally, to regulate or manage them (Article 8.1).

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7 In the text of the Protocol which was deposited with the Depositary, Article 3.5 of the Protocol provides that the components of biological diversity which the Parties are obliged to monitor are those referred to in Paragraph 4 of the same Article. This was a typing error, since the paragraph in question deals with other matters, namely strategies, plans and programmes. The drafters of the Protocol doubtless intended to refer to Paragraph 3 of Article 3. This error has now been corrected.

EROSION OF MEDITERRANEAN ECODIVERSITY

The human activities likely to diminish species diversity and ecodiversity are coastal development (reclamation, harbours, artificial beaches), fishing (commercial fishing, trawling, overfishing and amateur fishing), pollution (nutrients, organic matter, heavy metals, turbidity) and dumping (solid waste). These activities mainly affect the continental shelf, more particularly the infralittoral zone (from sea level to 30-40 m depth)

The Lithophyllum byssoides rim

The *Lithophyllum byssoides* rim is sensitive to pollution (especially hydrocarbons) and it is also threatened by constant treading. Finally, the rising of the mean sea-level, resulting from global warming, threatens the L. *byssoides* rims in the long term. The building up of this bio-construction is linked to a stable or very slowly rising sea-level.

The Posidonia oceanica meadow

The *Posidonia oceanica* meadows have dwindled considerably, in particular in the vicinity of the large urban centres: e.g. Athens, Naples, Genoa, Nice, Toulon, Marseilles, Barcelona. They are dwindling both at their lower limit (rising because of water turbidity and theresulting deficit in light) and at intermediate depths. The main causes of the reduction/disappearance of the meadows are as follows:

- Industrial and urban pollution, in particular detergents and nutrients.
- Turbidity, in reducing the limpidity of the water and the penetration of light to the deep. The result is a rising of the lower limit.
- Mooring of small boats.
- Trawling .
- Explosives. Bombs dropped at the time of World War II or fishing with dynamite.
- Coastal development: ports, artificial beaches and reclamations over *P. oceanica* meadows
- The laying of underwater cables and pipes.
- Alteration of the sediment flow.

Natural recolonisation by the *P. oceanica* meadow, after its destruction and if the causes are no longer operative, is very slow.

Photo : Kelimi © RAC/SPA

Photos 7 and 8 - Trawling on *P. oceania* meadows has a strong impact on juveniles of many species. This fishing activity is normally forbidden within three nautical miles of the coast (e.g. France, Italy, Tunisia), above the 50 m isobath (Spain, Italy, Gulf of Tunis, Algeria) or 20 m (the rest of Tunisia), so that, in principle, trawling is impossible over most of the *P. oceanica* meadows. In practice, this legislation is often not respected.

Photo : Kelimi © RAC/SPA

The coralligenous community

Reductions in the limpidity of the water (pollution, turbidity) and silting constitute the main threats to the coralligenous community. It is worth adding, locally, excessive visitings by scuba divers: erosion by contact of the coralline algae and Bryozoa *(Retepor*a in particular), the unintentional breaking of gorgonians by beginner divers and the deliberate tearing off of the red coral *Corallium rubrum* and the gorgonians *Eunicella* and *Paramuricea*.

Only the first two of these obligations are found in identical terms in the Barcelona Protocol (Article 3.5). The third obligation to regulate or manage the processes that have been identified is not therefore contained in the Protocol. However, this omission is more apparent than real. Indeed, with regard to species, Article 11.2 of the Protocol provides that the Parties shall regulate and, where appropriate, prohibit activities that have an adverse effect on protected species or their habitats. Similarly, in respect of specially protected areas, Article 6(h) envisages the prohibition of any activity or act that is likely to harm the species or endanger the state of conservation of the species or ecosystems.

Finally both the Convention and the Protocol require of each Contracting Party the use of the evaluation of impact assessment, integration of and respect for traditional activities, and the integrating of strategies and plans for the conservation of biological diversity into their sectoral and cross-sectoral plans and programmes.

Obligations relating to ecosystems and areas

- Ecosystems and natural habitat types

Article 8(d) of the Convention obliges the Contracting Parties to promote the protection of ecosystems and natural habitats. Article 8(f) requires the Parties to rehabilitate and restore degraded ecosystems. Article 3.1(a) of the Protocol provides that each Party shall take the necessary measures to protect, preserve and manage in a sustainable and environmentally sound way areas of particular natural or cultural value, notably by establishing specially protected areas. Legal measures other than protected areas can therefore be used for this purpose. This obligation goes further than that set out in the Convention, since it also covers areas of cultural value, which include, for example, the landscape. The adopting of measures designed to safeguard the landscape is specifically envisaged by Article 6(i) of the Protocol. In contrast with the Convention, the Protocol does not contain any provision on rehabilitating and restoring degraded ecosystems.

- Protected areas

It should be recalled, in the first place, that the creation of protected marine areas to protect and preserve rare or fragile ecosystems and the habitat of threatened species was one of the obligations set out in the UN Convention on the Law of the Sea (Article 194.5.

Under the terms of Article 8(a) of the Convention, each Contracting Party is obliged to establish a system of protected areas or areas where special measures need to be taken to conserve biological diversity. The protection of natural areas is one of the principal objectives of the Protocol. Specially protected areas, the establishing, protecting and managing of which is envisaged by Articles 4 to 7 of the Protocol, are intended to safeguard representative types of coastal and marine ecosystems of adequate size to ensure their long-term viability and to maintain their biological diversity, as well as habitats which are in danger of disappearing and those which are critical to the survival, reproduction and recovery of endangered, threatened or endemic species of flora or fauna (Article 4).

In contrast with the Convention, the Protocol provides a relatively detailed enumeration of the measures required for the protection of these areas (Article 6). The Parties are obliged to regulate and, if necessary, prohibit any activity or act likely to harm the species or that might endanger the state of conservation of the ecosystems or species or might impair the natural or cultural features of the specially protected areas. The Parties have to adopt

planning, management, supervision and monitoring measures, including a management plan, for these protected areas, as well as measures for the continuous monitoring of ecological processes, habitats, populat-ion dynamics, landscapes and the impact of human activities. When specially protected areas covering both land and marine areas have been established, the Parties are obliged to endeavour to ensure the coordination of the administration and management of the specially protected area as a whole (Article 7.4). However, the Protocol is silent on the need to promote sustainable development in areas adjacent to specially protected areas. The Parties also have to draw up a **List of Specially Protected Areas of Mediterranean Importance (SPAMIs)**, including sites which are of importance for conserving the components of biological diversity in the Mediterranean, which contain ecosystems specific to the region or the habitats of endan-gered species, or which are of special interest at scientific, aesthetic, cultural or educational level. They are obliged not to authorize or undertake any activities that might run counter to the objectives for which the SPAMIs were established (Article 8). This provision is not limited to activities undertaken within the SPAMIs. Any activity outside the SPAMIs also has to be prohibited if it is likely to harm them.

Common criteria for the choice of protected marine and coastal areas that might be included on the SPAMI List are appear in an Annex to the Protocol. These criteria address the general features of the areas concerned, their legal status and the protection, planning and management measures that are applicable to them. A particularly interesting and innovative aspect of the Protocol is the possibility that it offers its Parties of establishing SPAMIs on the high seas outside the limits of national jurisdiction. Since the coastal states of the Mediterranean have in general not created exclusive economic zones off their coastlines, the protection of

THE MEDITERRANEAN MARINE PROTECTED AREAS

Establishing marine and coastal protected areas is among the tools used by the Mediterranean countries to provide sustainable protection, restoration and wise use of the natural heritage in their coastal zones. Protected areas are also used for the conservation of endangered species, by protecting their habitats and sheltering their sensitive populations. Over the last fifteen years, the number of legally-protected sites in the Mediterranean coastal zone has increased from 70 to 145, covering about 2 million hectares of wetlands and land and marine areas. The Mediterranean countries can be said to have achieved their objective of establishing at least 50 new protected areas during the second decade of the Mediterranean Action Plan, as stated in their Genoa Declaration (1985). However, such an achievement has to be consolidated by extending the Mediterranean protected areas network and by improving its management. For the marine environment, there are now 52 marine protected areas in the Mediterranean. 16 are marine only and 36 include marine and terrestrial or wetland components. Only about 550,000 hectares of sea is covered by protected areas. Furthermore, several sites of great importance for the Mediterranean and several natural monuments remain unprotected, such as those containing significant seagrass meadows, or *Posidonia* reefs or *Lithophyllum* rims.

Photo 9 - The sea bottom of Tabarka (Tunisia).

THE SPAMI LIST, A NEW INSTRUMENT FOR THE PROTECTION OF BIOLOGICAL DIVERSITY

In order to develop a spirit of marine and coastal environmental protection in the Mediterranean region, the Protocol defined a new concept that of "Specially Protected Area of Mediterranean Importance" (SPAMI) and provided for drawing up a "SPAMI List".

The general characteristics of sites to be included on the SPAMI List are defined in Article 8. They are sites which "are of importance for conserving the components of biological diversity in the Mediterranean", or "contain ecosystems specific to the Mediterranean area or habitats of endangered species", or "are of special interest at the scientific, aesthetic, cultural or educational level". To be eligible for inclusion on the list, a site must present at least one of the general characteristics mentioned above. It is clear that one site could meet several of these criteria and that this could facilitate the site's being included on the list.- The procedure for including a site on the list provides for several stages:

- The proposal.
- An evaluation as to whether the site conforms to the guidelines and common criteria.
- The decision.

Photo 10 : Pilot whale in the French-Italian Monegasque Sanctuary recently included in the SPAMI List.

A) The proposal. Three distinct situations may occur:

i) If the area proposed is situated in a zone already delimited over which a Party exercises sovereignty or jurisdiction (e.g. in a zone of territorial waters over which there is no dispute between states as to sovereignty), the proposal is made by the relevant Party.

ii) If the area proposed is situated wholly or partly on the high seas, the proposal is made by the neighbouring Parties concerned.

iii) If the area proposed is in a zone where the limits of national sovereignty or jurisdiction have as yet not been defined (e.g. near a border that has not as yet been defined between the territorial waters of two states), the proposal is made by the neighbouring Parties concerned.

In all cases, Parties making a proposal provide the Regional Activity Centre for Specially Protected Areas with an introductory report containing the elements mentioned in Article 9. 3 of the Protocol (including the management plan and the means for its implementation).

B) An evaluation as to whether the site conforms to the guidelines and common criteria. For each area proposed the National Focal Points for SPAs, at one of their periodical meetings provided for by Article 24 of the Protocol, see whether the proposed site fits the guidelines and common criteria set out for the choice of protected marine and coastal areas to be included on the List (Article 16.a).

C) The decision. If the proposed site fits the guidelines and common criteria, a decision to include the area on the List is taken by the Meeting of the Parties. Two cases are to be distinguished here:

i) If the area proposed is situated in a zone already delimited over which a Party exercises sovereignty or jurisdiction, the decision to include it is taken by the Meeting of the Parties (with the majority normally required, that is two thirds of the Parties present and voting, as provided for in Article 43 of the rules of procedure).

ii) If the area proposed is situated in a zone where the limits of national sovereignty or jurisdiction have not yet been defined, or if it is situated wholly or in part in the high seas, a decision to include it is taken by consensus by the Parties, who also approve the management measures to be applied to the area.

The Protocol provides for the possibility of revising the List. There is provision for the preparation by the Centre of reports to this end (Art. 9, . 6). Although the Protocol does not lay down detailed procedure for revision of the List, it may be taken as implied that the revision is to be undertaken by the same body that decides whether to include sites on the List, i.e. the Ordinary Meeting of the Parties, in accordance with a procedure similar to that used for inclusion, that is to say after an evaluation by the Meeting of NFPs.

The consequences of an area being included on the SPAMI List are quite considerable. Firstly, the Parties who have put forward the proposal must implement the protection measures defined in the proposal. Secondly, all the Parties must respect the rules thus laid down, must comply with the measures applicable to the SPAMI in question and must not authorize or undertake activities which could be incompatible with the aims that motivated the establishing of the area.

The inclusion of an area on the SPAMI List therefore determines an effect that is legally binding on all parties. The measures do not bind third party states, given that treaties only create rights and obligations for the Contracting Parties. The Parties to the Protocol are however obliged to take appropriate measures, compatible with international law, to ensure that none undertakes activities contrary to the principles or purposes of the Protocol (Art. 28, . 2). Such joint action should in principle allow sufficient pressure to be exerted for citizens and ships of third party states to comply with the protection measures laid down for SPAMIs.

The inclusion of an area in the SPAMI List entails other obligations for the Party (or Parties) that put forward the proposal, which may be summarized as follows:

(i) Any modification of the delimitation or legal status of a SPAMI or suppression of all or part of it can only be decided on for important reasons, always taking into account the safeguarding of the environment. The procedure used must be similar to that observed for establising the area and including it on the List (Art. 10). The Party concerned is required to notify such modifications to the other Parties, particularly in the reports presented at Ordinary Meetings of the Parties.

(ii) By having an area included on the SPAMI List, the Parties undertake to grant it priority in matters of scientific and technical research (Art. 20. 4) as well as in matters of mutual assistance (Art. 22 . 3).

(iii) The Parties are obliged to present reports periodically to Ordinary Meetings of the Parties, concerning in particular the status and state of the areas on the SPAMI List, as well as any modification to their delimitation or their legal status (Art. 23 . (a) and (b)).

The Contracting Parties to the Barcelona Convention, during their last Meeting (Monaco, 14 - 17 November 2001) approved the inclusion of the first twelve protected areas on the List[1].

Setting up a SPAMI List strengthens cooperation between countries for the conservation of the natural heritage of the Mediterranean Sea and leads on to multinational governance of the environment

Photo : A. Bovoujina © RAC/SPA

Photo 11 : Submarine seascape of the Zembra marine protected area.

1 The Isla de Alboran (Spain), the sea bottom of the Levante of Almeria (Spain), Cabo de Gata – Nijar (Spain), Mar Menor and the oriental cost of Murcia (Spain), Cap de Creus (Spain), Medes Islands (Spain), Columbretes Islands (Spain), Port-Cros (France), the Kneiss Islands (Tunisia), La Galite (Tunisia), Zembra and Zembretta (Tunisia), the French-Italian-Monegasque Sanctuary.

marine ecosystems would have been limited to their territorial waters, which would have made it impossible to apply the Convention on Biological Diversity or Article 194.5 of the Convention on the Law of the Sea in most of the area to which the Protocol applies. Clearly, protection measures for areas on the high sea are only applicable to the Parties to the Protocol.

Another provision of great interest is Article 7.4 of the Protocol, which provides that when specially protected areas covering both land and marine areas have been established, the Parties shall endeavour to ensure that the administration and management of the specially protected area are coordinated as a whole. This provision is intended to encourage the Parties to overcome the considerable administrative difficulties which usually arise when two components of the same environmental unit come under the jurisdiction of different administrations. This provision, although it is only promotional, is not contained in any other existing treaty on the conservation of natural areas.

Obligations relating to the protection of species and the sustainable use of biological resources

The Convention on Biological Diversity and the Barcelona Protocol both contain a general provision on the conservation of species and more detailed provisions applicable to threatened species. Issues relating to the sustainable use of wild species are only addressed briefly in the Protocol, whereas they constitute an important plank in the Convention scheme of things.

Both the Convention and the Protocol provide similar general provisions on the conservation of species and specific provisions on threatened species.

EROSION OF MEDITERRANEAN SPECIES DIVERSITY

For the time being, no species seems to have disappeared from the Mediterranean. Some have, however, disappeared from fairly extensive sectors and seem likely to disappear completely in the near future. This is the case for example of the monk seal *Monachus monachus*.

An endemic Mollusc, the giant limpet *Patella ferruginea*, gathered by humans either for consumption or for use as bait, is also on the brink of extinction.

Photo: © RAC/SPA

Photo 12 - The monk seal, formerly widespread around the whole of the Mediterranean, now survives mainly in Greece and Turkey. During the last 25 years, its total numbers dropped from 1,000 to about 300 individuals, 150 - 200 of these in the Mediterranean.

Although not threatened with extinction in the immediate future, a number of species appear to be vulnerable. These are (i) naturally rare species, i.e. species whose numbers are slight and species whose sites are very localised, so that they are at the mercy of even a moderate increase in human impact, for example, urbanization, new ports or aquaculture facilities close to the sites of their populations. They are also (ii) species which are still relatively common but whose populations are dwindling rapidly. Several Red Books have inventoried some eighty vulnerable species in the Mediterranean (e.g. WELLS *et al.*, 1983; BAGHDIGUIAN *et al.*, 1987; BELSHER *et al.*, 1987; DUGUY, 1987; FRETEY, 1987; LACAZE, 1987; QUERO *et al.*, 1987; SCHEMBRI and SULTANA, 1989; BOUDOURESQUE *et al.*, 1990; GROOMBRIDGE, 1993; MAURIN and KEITH, 1994; BOUDOURESQUE *et al.*, 1996; MAYOL *et al.*, 2000).

- Protection of threatened species

The Protocol establishes that Parties are obliged, in the zones subject to their sovereignty or national jurisdiction, to identify and compile lists of endangered or threatened species of flora and fauna and accord protected status to such species (Article 11.2). In contrast to the Convention, the Protocol contains a detailed list of the protection measures which must be taken for these species. These include the control and, where appropriate, prohibition of the taking, possessing or killing, the commercial trading and transport of, protected species, as well as their eggs, parts or products (Article 11.3). The picking, collecting, cutting, uprooting, possessing, commercial trade in, or transport, of protected species of flora and of parts and their products also have to be regulated or prohibited (Article 11.5).
Both instruments provide for restorating threatened species. In the Protocol, special provisions are applicable to the threatened species contained in the List that is annexed to the Protocol, whose recovery the Parties are obliged to ensure (Article 12.2) and for whose conservation or recovery they are to implement action plans (Article 12.3).
Both the Convention and the Protocol establish obligations to adopt plans for the recovery of threatened species including, where necessary, measures for their conservation ex situ, followed by the reintroduction of the species concerned to their natural habitat. Other instruments applicable to the Mediterranean contain similar provisions (i.e. the Bern Convention).

- Sustainable use of biological resources

The sustainable use of components of biological diversity is one of the principal objectives of the Convention.
The Protocol also establishes a general obligation as regards sustainable use, which is fully compatible with the corresponding provisions of the Convention. The Parties are obliged to manage species of flora and fauna with the aim of maintaining them in a favourable state of conservation (Article 11(1)), which implies that they have to regulate their use when this is likely to be unsustainable. In an Annex, the Protocol also contains a list of species whose exploitation must be regulated. The Parties are obliged to adopt cooperative measures to ensure the protection and conservation of the species contained in this list (Article 12(1)). Although the exploitation of these species is authorized, it must be regulated so as to ensure and maintain their populations in a favourable state of conservation (Article 12.4).
Unlike the protected species, species whose exploitation must be regulated are not covered by provisions in the Protocol that set out the measures which have to be taken by the Parties to give effect to these obligations. However, Article 12(4) states that measures have to be taken in cooperation with the competent international organizations, which means in practice with the organizations responsible for fishing, such as the GFCM. On the issue of sustainable use, the Protocol and the Convention only establish basic rules, the application of which will have to be ensured through other legal instruments.

Photo: A. Bouajina © RAC/SPA

Photo 13 : The gruper *Epinephelus marginatus* one of the species listed in Annex III of the Protocol.

The introduction of alien species or genetically modified organisms

- Alien species

The problems caused by the introduction of non-indigenous species are particularly severe in the Mediterranean, where there have been many such introductions, which may have catastrophic consequences on ecosystems and indigenous species.
Most legal instruments addressing the protection of natural habitats and wild species that are applicable in the Mediterranean contain provisions on the introduction of alien species.
The Convention on Biological Diversity lays down the obligation (Article 8(h)) for each Party to (...) prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species.
The Protocol includes most of these provisions. The Parties are obliged to take all appropriate measures to regulate the intentional or accidental introduction of non-indigenous (...) species (...) and prohibit those that may have harmful impacts on ecosystems, habitats or species (Article 13.1). Article 13.2 requires the Parties to endeavour to implement all possible measures to eradicate species that have already been introduced when, after scientific assessment, it appears that such species cause or are likely to cause damage to ecosystems, habitats or species in the area to which this Protocol applies.

The Protocol establishes, thus, the basis of a common policy as regards the introduction of alien species and in so doing (and it is the only instrument to do so) for implementing at the level of the Mediterranean as a whole the corresponding obligations set out in the Conventions on the Law of the Sea and on Biological Diversity. Alien species that are introduced are already causing, or are likely to cause substantial harm to biological diversity in the whole of the Mediterranean. Controlling such introduction is therefore a matter of concern for all coastal states, which will have to formulate and implement a strategy, including an inventory, follow-up measures and the eventual eradication of species which have already been introduced, as well as the prevention of any further such introduction.

The Protocol establishes the possibility of taking eradication measures in accordance with the Convention on Biological Diversity.

- Genetically modified organisms

Article 8(g) of the Convention on Biological Diversity establishes the obligation for Parties to establish or maintain the means of regulating, managing, or controlling the risks associated with the use and release of living modified organisms resulting from biotechnology which are likely to have adverse environmental impacts that could affect the conservation and sustainable use of biological diversity (...).
All the provisions of Article 13 of the Barcelona Protocol respecting the introduction of non-indigenous species, including the provision relating to their eventual eradication, are applicable to genetically modified organisms.

INTRODUCED SPECIES

There are about 400 introduced species in the Mediterranean, among which are almost 90 macrophyte algae.

Most introduced species are Lessepsian immigrants. The entry into the Mediterranean of species from the Red Sea still facilitated by the low biodiversity of the eastern basin.

Many other species introduced to the Mediterranean arrive through fouling and clinging (i.e. on ships' hulls), aquaculture, ballast waters and release from aquaria.

The effects of invasive specie on the marine environment has been very little studied. Little is known about the possible impact of most of the 400 species introduced into the Mediterranean.

The conclusions which can be drawn from the available studies show that each introduced species constitutes a special case. According to species, the possible impact can range from zero or slight impact to more or less drastic changes in the number and/or abundance of native species up to the displacement of the native ecosystems, due to the setting up of a totally new ecosystem.

Photo © RAC/SPA

Photo 14:
The green algae *Caulerpa taxifolia* one of the main discussed invasive specie of the Mediterranean

Research, education, public participation and awareness

- Research

Article 12 of the Convention on Biological Diversity addresses research and training.

Article 20 of the Protocol establishes that Parties are obliged to encourage and develop scientific and technical research relating to the aims of this Protocol, and research into the sustainable use of specially protected areas and the management of protected species (Article 20.1). They are required to consult each other when necessary, (...) with a view to identifying, planning and undertaking the scientific and technical research and monitoring programmes necessary for identifying and monitoring protected areas and species (...) (Article 20.2). They are also required to exchange information on their research and monitoring programmes, coordinate their programmes to the fullest possible extent, and endeavour jointly to define or standardize their procedures (Article 20.3). Priority has to be given to SPAMIs and species appearing in the Annexes to the Protocol (Article 20.4).

- Public education and awareness

Article 13 of the Convention calls upon the Contracting Parties to promote and encourage understanding of the importance of, and the measures required for, the conservation of biological diversity, and the inclusion of these topics in educational programmes. They are also required to cooperate, as appropriate, with other states and international organizations in developing educational and public awareness programmes.

This very general provision is reflected in the Protocol by an obligation to inform the public of the interest and value of specially protected areas and species, and of the scientific knowledge which may be gained. Such information should have an appropriate place in education programmes (Article 19.2). The Parties are also required to give appropriate publicity to the establishing of specially protected areas and the applicable regulations, and to the designation of protected species, their habitats and applicable regulations (Article 19.1).

- Participation of the public

The two instruments provide for involving the public in the conservation and sustainable use of biological diversity.

Exchange of information and cooperation between the Parties

- Exchange of information

The Contracting Parties to the Convention are required to facilitate the exchange of information, (Article 17.1) (Article 17.2).
Article 21.1 of the Protocol provides that there shall be regular exchanges of information concerning the characteristics of protected areas and species, the experience acquired and the problems encountered. In the event of any situation that might endanger the ecosystems of specially protected areas or the survival of protected species of flora and fauna, the Parties are required to communicate them at the earliest opportunity to the other Parties, to the states that might be affected and to the Centre (Article 21.2).
These provisions are in full accordance with those of the Convention. Nevertheless, they are more detailed and precise.

- Cooperation between the Parties

In Article 5, the Convention on Biological Diversity establishes the general obligation of cooperation between its Parties for the conservation and sustainable use of biological diversity. This cooperation may occur either directly or through the competent international organizations. It may concern areas outside national jurisdiction, such as the high seas, and other matters of mutual interest. The Protocol contains a very similar provision. The Parties to the Protocol are required to cooperate directly or with the assistance of the international organizations concerned for the conservation and sustainable use of biological diversity in the area to which the Protocol applies.

The Protocol may be considered as an instrument that applies Articles 5 and 18 of the Convention. It establishes cooperation machinery that extends to the high seas, as required by Article 5, and explicitly provides for the development of cooperation programmes to coordinate the measures taken for its application, and assistance to developing country Parties for their implementation, which must be considered to constitute a provision giving effect to Article 18 of the Convention. In its own right, it also constitutes an institutional framework for cooperation between its Parties for the conservation of biological diversity at Mediterranean level .

4. CHALLENGES FOR THE COMING YEARS

One feature of the Mediterranean Sea is its high level of species diversity, with a high rate of endemism. However, scientists still believe that, since marine ecosystems and species have been very little studied in the Mediterranean, its true biological diversity remains unknown.
The Mediterranean action for the conservation and the sustainable use of marine and coastal biological diversity is being mainly directed towards the following :

-Improving knowledge about the components of the Mediterranean natural heritage
To design and implement suitable measures for conserving and managing the natural heritage, it is important to possess reliable data on the state of the elements that make up biological diversity, and the trends of their development. It is also important that data be collected and presented according to standardized methods, permitting complementarity and comparability of data from diverse origins. Moreover, the data collected must be available, easily accessed, and regularly updated. New communication and data-transfer technology must be used.
The availability of reliable data allows periodic evaluations to be made as frequently as required on the state of biological diversity, on condition, however, that the updating of this data is guaranteed, particularly via monitoring programmes.
Lack of data is made worse in the Mediterranean by the absence of effective mechanisms for circulating and exchanging scientific information and reliable techniques. A Clearing House Mechanism devoted to the various aspects of conservation of biological diversity is being launched, at Mediterranean level, by RAC/SPA in close cooperation with the relevant existing initiatives, with a view to promoting information exchanges.

- Conserving natural sites of particular interest
Creating specially protected areas is often an efficacious way of conserving natural sites of particular interest. But the effectiveness of the protected areas depends on the effective implementing of the management and protection measures advocated. However, management is still insufficient in many Mediterranean protected areas, especially for the marine environment, where there is an acute need to improve the management and to strengthen the enforcement of protection measures.
Despite what has been achieved, much still remains to be done to develop Mediterranean marine and coastal protected areas. Indeed, several sites of interest for conservation remain unprotected, and the quality of the management and the actual protection is not up to the


Photo : M. Ballmi © RAC/SPA

Photo 15 :
Axinella polypoides
one of the species listed
in Annex III of the Protocol.

required standard in many countries of the region. But it is expected that appreciable progress will be made over the coming years in developing Mediterranean marine and coastal areas. This advance will be due both to the important work being done to inventory sites of interest for conservation, and to the process of making the List of SPAMIs, which is expected to be a dynamic process catalyzing the development, at national level, of marine and coastal protected areas.

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

Created in 1985,The RAC/SPA, one of MAP component, was established by the Contracting Parties to the Barcelona Convention with the aim of assisting Mediterranean countries to implement the Protocol concerning specially protected areas and biological diversity in the Mediterranean.

RAC/SPA mission

1/ Assistance : One of the main mission of RAC/SPA, is to assist countries to implement the SPA protocol. For the implementation of the Protocol, countries need financial and/or human means. RAC/SPA will provide the necessary means by giving a technical and financial contribution. It must be noted that the purpose of RAC/SPA, as the other structures of MAP, is not to finance activities and the budget at his disposal permit to give little financing mostly punctual or complementary . The sort of support that RAC/SPA gives is the expertise through its experts or through consultants recruited for the realization of specific actions and in limited period as convened between the centre and the concerned national focal point.

2/ Coordination : Other important mission of RAC/SPA, is to coordinate actions between the Parties in the framework of the implementation of SPA Protocol. The Parties should adopt different technical tools, action plans guidelines and other measures that permit the implementation of the Protocol. On the other hand, it is necessary to evaluate periodically the progress report of the implementation of SPA Protocol and its action plans. RAC/SPA in collaboration with the coordinating unit of MAP, is in charge of the preparation of these different tools. The Centre organise workshops or expert meetings for their adoption by the national experts, which are the representatives of the Parties and are submitted to the Parties for their final adoption.

The missions of the RAC/SPA, as they figure in the Protocol concerning SPA and biological diversity, consist in:

a) assisting the Parties, in cooperation with the competent international, intergovernmental and non-governmental organisations, in :

- establishing and managing specially protected areas
- conducting programmes of scientific and technical research in conformity with article 20 of the present Protocol
- conducting the exchange of scientific and technical information among the Parties as provided for in Article 20 of this Protocol
- preparing management plans for specially protected areas and species,

b) convening and organizing the meetings of the National Focal Points and providing them with secretariat services.

c) formulating recommendations on guidelines and common criteria pursuant to Article 16 of this Protocol
d) creating and updating databases of specially protected areas, protected species and other matters relevant to this Protocol
e) preparing reports and technical studies that may be required for the implementation of this Protocol
f) elaborating and implementing the training programmes mentioned in Article 22, paragraph 2
g) cooperating with regional and international governmental and non-governmental organizations concerned with the protection of areas and specie, provided that the specificity of each organization and the need to avoid the duplication of activities are respected
h) carrying out the functions assigned to it in the action plans adopted in the framework of this Protocol
i) Carrying out any other function assigned to it by the Parties

Budget

The Mediterranean Trust Fund supplied by the Contracting Parties funds RAC/SPA's activities and its functioning. This fund is fixed every 2 years by the Ordinary Contracting Parties meeting which establishes also its activities programmes for these 2 years. The contributions of Tunisia as host country are in nature. The budget that RAC/SPA has at his disposal is often insufficient for the implementation of activities notably for answering the needs expressed by countries, that is why the Centre is obliged to look for other funding of resources from non-governmental, governmental, and international organisations.

Team

RAC/SPA's team is composed by the director, a scientific director, national and international experts in marine biology and is supported by an administrative team.

Cover Photo A. Bouajina © RAC/SPA
Printed in Tunisia
June 2002

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City / Country, 2002