

Project for the Preparation of a Strategic Action Plan for the Conservation of  
Biological Diversity in the Mediterranean Region  
(SAP BIO)

## IMPACT OF TOURISM ON MEDITERRANEAN MARINE AND COASTAL BIODIVERSITY



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**RAC/SPA - Regional Activity Centre for Specially Protected Areas  
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# **CHAPTER I**

## **INTRODUCTION**



## 1.1 Background to the study

### 1.1.1. General framework

A number of countries bordering on the Mediterranean basin partly base their development on tourism, particularly seaside tourism, by enhancing the richness of their coastal landscape and ecology. However, this kind of development is not without risk for habitats, biodiversity and landscapes, that is, in the final analysis, for tourism and development.

Mediterranean ecosystems are of major ecological interest in comparison with other biogeographic areas of the biosphere. In particular, thanks to their specific richness, they rank next to tropical ecosystems in terms of biodiversity.<sup>1</sup> The WWF Mediterranean Programme has identified 10 Mediterranean marine and coastal areas that are vital for biodiversity:

- The Alboran Sea (Spain, Morocco, Algeria)
- The Dalmatian coast (Croatia)
- The Gulf of Gabès (Tunisia); the Cyrenaic coast and Gulf of Sirta (Libya)
- The Anatolian coast (Turkey)
- The Aegean Sea and coast (Greece, Turkey)
- The Corsican and Sardinian coasts (France, Italy)
- The east coast of the Iberian peninsula and the Balearic Islands (Spain)
- The Ligurian-Provençal coast (Italy, Monaco, France)
- The southern Tyrrhenian coast (Italy)
- The coasts and islands of the eastern part of the Ionian Sea (Albania, Greece).

Many people are aware that these coasts and marine areas risk degradation and that their promotion can only be envisaged through a sustainable management approach, as underlined by the Mediterranean Commission for Sustainable Development: "[...] the sustainable management of these coastal areas is a crucial investment for the future of the Mediterranean. However, [...] only within a development perspective can environmental problems be effectively managed. Development alone will generate new financial resources and produce the scientific, technical and administrative skills that will permit states, local authorities, enterprises and NGOs to improve their expert capability and their ability to deal with environmental problems. Lastly, improving environment and way of life can only be done by increased public information and education and the involvement of the Mediterranean citizenry, particularly women and children."

The present work is in keeping with this line.

### 1.1.2. Overview of the terms of reference

Details of the study's Terms of Reference appear in Annex 5.5. This document will deal with the impacts of tourism on coastal and marine biodiversity, and particularly on sensitive species and habitats and protected areas in the Mediterranean, on the basis of the National Reports of participating countries, their main contribution to preparing the SAP/BIO (Strategic Action Plan for the Conservation of Marine and Coastal Biodiversity) in the Mediterranean basin.

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<sup>1</sup> RAMADE François (1997)

The document is to analyse the present situation, identify problems and submit proposed actions/solutions.

### 1.1.3. Specially Protected Areas<sup>2</sup>

The Mediterranean, which is undergoing a demographic growth and an urban development that only increase with time, and is marked by heavy sea traffic and the massive exploitation of its resources, has appeared to be greatly threatened in the last few decades. The ecosystems of coastal areas and the rich and varied specific communities they harbour in small surface areas face the most serious threats. As a mosaic of land and water ecosystems, the coast seems to be an area that is all the more fragile and coveted in that the Mediterranean coastal fringe is narrow and remains the favourite locus of numerous economic activities linked to tourism (water sports, boating) or to the exploitation of natural resources (aquaculture, fishing). The coexistence of these different activities, which often are quite incompatible with each other and the source of many nuisances (pollution, coastal development, erosion, etc.), disrupts the stability of coastal ecosystems and seriously endangers their future preservation. In addition to the ecological problem posed by these changes particularly with respect to biodiversity, the extinction of many species is not without economic consequences (affecting primary production, spawning or nursery grounds, etc.).

In the face of such risks, it had become necessary to set up a policy that would integrate sustainable development and environment protection. It had emerged that the conservation of marine and coastal Mediterranean ecosystems would not only ensure optimal management of live resources, but also preserve the overall quality of the marine environment, thus maintaining tourist inflow in areas where this activity was an essential resource and a major developmental asset. In this perspective, various protective legal measures were taken both within the framework of international agreements (Barcelona Convention for the Protection of the Mediterranean against Pollution, the Ramsar Convention for the Preservation of Wetlands, Habitat Directive for the Conservation of Natural Biotores) and at national level (lists of protected species, setting up of Parks and Reserves, etc.). In 1985 these decisions were expressed in the Genoa Declaration, which provided for the protection of threatened marine species and at least 50 new marine coastal sites.

The setting up of Specially Protected Areas (SPAs), initiated in the 1960s in France (setting up of the Port-Cros National Park in 1963), has considerably developed in the Mediterranean region since that period, spurred on by international conventions and supported by numerous organisations (UNEP/MAP, IUCN, European Community). Rather than protect a single species, these SPAs are generally more effective in that they both protect a whole range of remarkable species as well as the biotope in which they live and the ecosystems associated with them. In addition, because of their limited geographic area and the specific financial means usually allocated to their management, monitoring is carried out more easily and more effectively in the SPAs than in the case of any given species. SPAs have a generic terminology and may include national parks, reserves or any other type of area with widely varying statuses.

The positive aspect of a protected area is practically always recognised in that it has an impact on a) the conservation of the natural heritage (conservation of biodiversity, increase in biological production, protection of biocenoses and notable landscapes), b) public awareness (educational action, publication of educational documents) and c) the development of scientific research. However, the economic impact is generally much debated. Indeed, the setting up of a protected area and relevant legislation result in a range of restrictions and constraints that may be unfavourably perceived by users of the marine environment. The main constraints involved in setting up an SPA relate to sea professionals' activities (fishermen, fish farmers, planners, diving club officers) as well as tourists' (underwater hunters, divers, amateur fishermen, yachtsmen).

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<sup>2</sup> Excerpts from PERGENT Gérard, PERGENT-MARTINI Christine (1997)

At fishery level, without minimizing the impact of these constraints, it is becoming increasingly clear that the setting up of an SPA, when managed in close collaboration with sea users, may be an important asset for regional economic development. The setting up of an SPA closed to fishing permits fish stocks to be replenished and, most of all, surplus biological production to be exported to peripheral areas and thus help restock them through the "reserve effect." One result of this increase in production is increased catch (for the same catch effort) and the development of fishing activities (number of station bills, renewal of fishing gear, etc.). Looking back ten years one can see that the setting up of the Port-Cros National Park has permitted grouper stocks to be replenished, which directly benefits all neighbouring underwater areas. The setting up of the Nueva Tabarca Marine Reserve in Spain has permitted the catch of two kinds of fish of high market value (the gilthead seabream and the dentex) to be increased outside the reserve.

Fishermen are not the only people who benefit from the economic results of setting up an SPA. Tourism, an important source of hard currency for many Mediterranean countries at present ? indeed an essential one for insular countries? is another sector that profits from this protection of the natural environment.

But the development of tourism also has disadvantages. If an attractive site is classified a protected area without appropriate complementary management measures and means, such management failure may pose a threat to biodiversity.

## **1.2. Documentation**

### **1.2.1. Countries' documents**

Consistent with the Terms of Reference, this analysis was to be based on excerpts from the countries' National Reports relating to the impacts of tourism on habitats and biodiversity. While some of these documents did provide information that could help guide reflection, many others fell short of the mark. Some countries only provided an analysis of the coastal tourism situation without any information about the impacts on environments, species and protected areas. Others merely offered summary tables without any explanation.

Lastly, a number of countries failed to send in their National Reports.

### **1.2.2. Additional data collection**

In order to come by missing information and give as complete a picture of the situation as possible, we had to turn to other information sources.

#### **1.2.2.1. UNEP/MAP Regional Activity Centres**

The first information source were the various Regional Activity Centres of the UNEP Mediterranean Action Plan, in particular the RAC/SPA, RAC/PAP, PB/RAC and other regional programmes such as the Coastal Area Management Programme (CAMP)

The first additional document was Chapter 3 of the RAC/SPA Overview of National Reports in the Strategic Action Plan for the Conservation of Biodiversity in the Mediterranean Region of the Regional Action Centre for Specially Protected Areas.<sup>3</sup>

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<sup>3</sup> UNEP/MAP/RAC/SPA (2003). SAP BIO Document

All other documents emanating from UNEP/MAP and its various Regional Action Centres (see Bibliography) were looked up/downloaded from their respective websites.

#### **1.2.2.2. Other information sources**

Five other types of documentation source were used through visits to their websites:

- Ministries and National Agencies in charge of the environment, protected areas and tourism
- Research institutes and universities (with a website) in a number of countries
- International NGOs operating in the fields of the environment, nature protection, biodiversity conservation, promotion of sustainable-tourism/development and promotion of ecotourism
- National NGOs operating in the same field and possessing a website
- A number of tour operators.

Such documentary research obviously has many weaknesses. The information collected, which is very disparate, and on widely different scales, sometimes lacks objectivity or is very old. The websites of official organisations rarely mention the impact of tourist activities on protected areas (except in the case of CBD<sup>4</sup> reports, for instance), which are described as so many little "paradises". This is also the case for tour operators' websites, though these show how environments and biodiversity are described by tourist professionals and to what extent international and national regulations are complied with. Unfortunately, official sites often lack updating. These sites, as well as those of tour operators, often include mistakes in the names of species.

Naturally, NGOs' websites are quite different and often very up-to-date. Militant sites, which are dedicated to the conservation of given species ? the monk seal, turtles? or are more politicised, sometimes lack objectivity, just like a number of official sites. The websites of major international NGOs (UICN, WWF, WCS, TNC, TES, etc.), which concentrate less on a specific region or species, offer well thought out documentary material from a general perspective.

The following report results from such a compilation of, sometimes, disparate information data. Not all chapters are equally precise or updated, and this is particularly true for those relating to certain countries.

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<sup>4</sup> Convention on Biological Diversity

# **CHAPTER II**

## **SITUATION BY COUNTRY**

As indicated in the previous chapter, the information available in a number of National Reports would not have provided sufficient material for a few lines in this one. This has made it necessary to seek additional information so that the same structural features could be included in chapters on the different countries, i.e., overall situation, sources of impact, impacts on habitats and species, envisaged action and summary table. In some cases, some paragraphs are missing because the data collected was insufficient, irrelevant, outdated, probably erroneous or impossible to verify.

## 2.1 Albania

### **Overall situation**

Before the 1990s, internal migration was strictly controlled by the state. Today, populations are migrating from the country's impoverished inland areas to the big cities and coastal areas. Following the same trend, former landowners are making their way back to their coastal estates to develop the tourist infrastructure that will yield quick returns. Tourism is therefore a recent development, and tourist infrastructure is, for the time being, quite limited and hard to get to. The increasing flow of foreign tourists is very significant, particularly of Albanian emigrants coming from Greece, Italy and Germany.

### **Sources of impact**

The main sources of impact are related to this rapid development of the infrastructure, in particular accommodation infrastructure (particularly buildings on beaches or rocky coastal areas) without any planning or control, and without any facilities for solid waste and waste water treatment. These buildings on rocky coastal areas have caused the degradation of rock vegetation composed of the *Limonium* genus, which are very sensitive to human activity.

Another two sources of impact, fishing with dynamite (which, though not directly linked to tourism, is aggravated by increased demand during the tourist season) and hunting (by unlicensed foreign hunters who take advantage of the limited control and repression means) are on the rise.

Overall, the legislation and general organisation of environment and biodiversity protection are sometimes unclear as a result of overlapping spheres of responsibility and competence.

### **Impacts on habitats, species and protected areas**

The impacts of tourist activities are, for the time being, limited in terms of significance and area.

The most important impact on habitats is linked to the development of the accommodation infrastructure: use of coastal and dunal sand for building purposes, modification and break-up of wetland habitats by road building.

At species level, the development of foreign tourism has resulted in increased exploitation of red coral and sponges of the *Spongia* genus. Many fish and crustacean species are endangered by the use of explosives for fishing (to supply tourist sites as well as local markets), as are a number of mollusc species, like date-shells, by being used to supply European markets and feed tourists.

The colonies of a certain number of bird species, like the white-tailed eagle or the pygmy cormorant, are disturbed by the development of tourism, which results in the alteration and break-up of their habitats, and disturbance, or direct removal by hunting, particularly in the winter.

The Karavasta lagoon (a Ramsar site) is an important nesting site (2 to 4% of the world population) of the Dalmatian pelican. Access to it is controlled, but tourism (hunting) is rapidly developing in this area, which is only 100 km from Tirana.

On either side of the Gulf of Vlorë, all the sites of the Llogara National Park, the Karaburun Peninsula (a Managed Nature Reserve, UICN cat. IV), in which monk seals were sighted recently, Sazan Island, the Orikoumi Lagoon, the dune ridges, the Narta Lagoon, and the Pishe Poros pine forest (a Managed Nature Reserve, UICN cat. IV) are little affected by tourism for the time being. Indeed, tourism has not yet developed much in these areas, but the Narta lagoon – which, though not yet very well known to researchers, is considered the second most important site on the Albanian coast after Karavasta in view of the number of its bird species, and may become a Ramsar site for that reason – is already under intense tourist pressure during the summer months. The dunes, which have been little affected up to now, have recently started being exploited for building material. The lagoon itself has no status.<sup>5</sup> Many tourist projects are envisaged in the Gulf of Vlorë<sup>6</sup>.

The Shëngjin, Lesh, and Kunes wetlands, which are important waterfowl nesting sites, are little affected by tourism for the time being.

The Sarandë-Butrinti area, which includes wetland, marshland and the estuaries of many coastal rivers has notable biodiversity.<sup>7</sup> A National Park was set up in 1999 on an area of 2, 500 ha and gets financial support from the World Bank (IDF). Up to now the main actor in tourist development has been the local population (through room and house letting) with the concomitant impact on dunes resulting from the removal of sand. Today, foreign investors are exerting pressure to obtain building permits for hotels, holiday villages and tourist infrastructure. Other factors, unrelated to tourism, have resulted in the degradation of ecosystems, as is the case for the diversion of the Bistrica coastal river for agricultural development.

However, at present, the main threats to the environment and to biodiversity are not directly related to tourism, but to urban and industrial pollution in the cities of Durrës, Vlorë, Lezhë, and Sarandë. The Kuna-Vaini, Karavasta and Narta lagoons, and the bay of Vlorë (mercury pollution) are subjected to considerable pollution from domestic, agricultural and industrial effluent.

### **Action taken**

Various actions have already been taken along the lines of the integrated management of coastal zones. Thus the CAMP Albania project<sup>8</sup>, studied from 1993 to 1995, aimed at creating and promoting a sustainable development process through the planning and integrated management of coastal resources. It included 15 activities divided into 4 main categories:

- Prospective analysis (systems and prospective analysis, development of scenarios)
- Development and implementation of regulatory instruments (developing environment legislation, inventorying terrestrial pollution sources, setting up protocols for SPAs, following up marine pollution, etc.)
- Sector-based studies (programmes training for conservation and management of historic human settlements, etc.)

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<sup>5</sup> MedWetCoast project. Country Profile.

<sup>6</sup> ICAM Durrësi-Vlora Region – Coastal Area Management Plan - CAMP Albania

<sup>7</sup> Including an archaeological site listed in the UNESCO World Heritage: Buthrotum (3,000 years old).

<sup>8</sup> MAP Coastal Area Management Programme, Albanian Coastal Region (PAP/RAC).

- Integrated management of coastal and marine areas, particularly in the Durrës/Vlorë region (cf. preceding paragraph on impacts).

These different studies aimed at:

- preserving and making a long-term rational utilization of coastal resources (through taking appropriate management measures to solve environmental conflicts and set the best course for dynamic development)
- developing the Albanian coast in harmony with the carrying capacity of the environment and creating suitable conditions for planning and integrated management of resources
- finding an immediate solution to urgent environmental problems.

Among the other initiatives worth mentioning is the "Rational Coastal Tourist Development" project in the Sarandë-Butrinti coastal area (cf. preceding paragraph on impacts) implemented by the National Environment Agency opposite the island of Corfu (Greece). The National Environmental Management Agency has drawn up a coastal area management plan aiming to integrate sustainable development concepts into its tourist development policy. Three kinds of action are envisaged to reconcile tourist development and the protection of biodiversity:

- Strengthening institutional capacities: setting up an authority in charge of planning and administering the coastal area, implementing a master plan, etc.
- Consolidating the legal and political framework: preventing erosion, waste management, and polluting emission standards
- Education and training.



## **Overview**

Species	Site/habitat	Protected area	Source of impact, level of disturbance and trends	Action taken or envisaged
Red coral			Harvest for export and sale to tourists	Implementation of the CAMP Albania programme and other projects for integrated, sustainable management of coastal zones, which involve action to strengthen the capacities of institutions and consolidate the legal and political framework, as well as educational and training work.
Spongia of the Spongia genus			Failure to implement regulations	
Date-shell				
Various bird species: sea-eagle, pelican, cormorant		Karavasta Lagoon, Narta Lagoon	Break-up of habitats, hunting Failure to implement regulations Growing impacts	
Monk seal		Karaburun Peninsula, Sazan Island	Pollution	
Dunal vegetation	Coastal dunes Coastal erosion		Use of sand Building Growing impacts	
Species of the Limonium genus	Rocky coasts		Building Failure to implement regulations	

Table 1: Albania – Overview of impacts

## **2.2. Algeria**

### **Overall situation**

The coast remains by far the favourite tourist destination in spite of its limited capacities. Today, seaside tourism is mostly restricted to Algerian nationals, and tourist centres are scattered along the coast. However, this kind of tourism is growing rapidly, and considerable investment is envisaged in the short and middle terms to develop seaside tourism for foreign tourists. The situation will quickly become worrying because all the infrastructure is concentrated on a very narrow strip of coast.

The main obstacles to habitat and biodiversity conservation in the Algerian coastal zone are: the lack of marine protected areas, the limited number of protected marine species, the lack of monitoring programmes for specific species like marines turtles, the lack of public awareness.

## **Sources of impact**

The National Report fails to draw a distinction between impacts linked to urbanization and urban activities and those linked to tourist activities. The main sources of impact listed in the Report are: trampling, the extraction of sand for building purposes, the eutrophication of water, particularly in coastal wetlands, the agricultural development of wetlands, the drying up of these wetlands by the building of dams on rivers, etc.

## **Impacts on habitats, species and protected areas**

The main impacts listed in the Report are: the disappearance of the lammellibranch fields which used to cover scores of hectares on the outskirts of Algiers (this impact was probably not caused by tourism), disturbance of nesting sites, the destruction of nests and collecting of eggs, the destruction of barrier reefs and vermetid platforms, the destruction of the dunal environment by trampling, resort overcrowding and the building of tourist infrastructure.

The marine flora is in a poor state in many places, particularly the Posidonia and Cystoseira meadows around the Habibas Islands ? whose classification is under way, but there is nothing to indicate that tourism has caused this degradation. The greatly polluted rivers and coast may have caused this situation, since Cystoseira, for instance, is very sensitive to detergent-related pollution.

Information on the situation of marine fauna is imprecise. The monk seal apparently still exists but is an endangered species in the Habibas Islands. In 1979, the monk seal population around the islands numbered one hundred in the western area and about 15 in the central one. Ten years later there were only 15 seals ? at one time it was thought there were 50 to 80 of them? in the western area and none at all in the central one. In 1992, specialists had counted 25 seals along the coast, of which ten were between Oran and Marsat Ben M'hidi. Red coral is thought to be very widely overexploited. No information on turtles is available.

The El Kala National Park. Covering 80, 000 ha, it is the most important complex of protected diversified habitats on the Algerian coast, including beaches and dunes, sandstone cliffs with caves, wetlands, marshland, lagoons, forest zones, etc. The Park does not include any marine area, even though the conservation of the adjacent marine environment was recommended a long time ago, in view of the rich Mediterranean biocenoses of its sandy and rocky environments, particularly the red coral formations (much exploited in the past) and Posidonia meadows. In 1990 UNESCO classified it as a Biosphere Reserve.

The El Kala Park flora includes approximately 850 species, representing one third of the Algerian flora. Its characteristic feature is a particularly high rate of rare, very rare, and endemic species. The El Kala flora is veritably a bio-geographic crossroads, with Mediterranean species dominant (50%), species with a European affinity (20%), cosmopolitan species (20 %) and tropical ones (10%). The coastal dune vegetation is composed of light juniper scrub which is superseded inland by forest formations of cork oak, pinaster and Aleppo pine. The Aleppo pine forest, which is limited to the dry areas of the old dunal formations to the north of Lake Mellah, is unique in the north-eastern region of Algeria.

In view of the diverse (forest, lacustrine, dunal and marine) ecosystems and the numerous ecological niches, the Park harbours a widely diversified fauna. Thus the mammalian group is represented by at least 37 species including 9 chiroptera, the Barbary deer (an endemic species, the only African deer at present, which lives in the Lake Mellah forest), the spotted hyena, the ichneumon mongoose, the common genet, the caracal lynx and the serval, which are becoming increasingly scarce, and the otter, a worldwide-protected species which lives in the Lake's fresh water. The monk seal occasionally visited the Park's rocky coasts, coming perhaps from the Galite Islands in Tunisia, and may have

become extinct in these areas (as was the case in the Galite Islands). The bird class numbers 134 nesting species, including many ducks, grebes, etc., some of which are rare, like the Bonelli's eagle, the osprey, the purple swamphen, the white-headed duck, the marbled teal and the ferruginous pochard, the Audouin's gull being threatened with extinction. The glossy ibis comes occasionally. In addition to the nesting avifauna, the El Kala Park hosts many migratory birds, for it is located on the most important migration routes of the western palearctic. Reptiles and amphibians abound because of the rich environment. Among these species, some are rare, as is the case for the spotted salamander, the warty gecko, the *Emys orbicularis occidentalis* as well as the *Pleurodeles poireti*, an endemic species in both Algeria and Tunisia.

Tourism is rapidly growing in the El Kala Park. In 1997 100,000 people visited the Park, of whom 12,000 were foreign tourists. A hotel and a camp site can accommodate visitors. The duration of the visitors' stay is short, approximating 1.5 days. Tourist activities mainly impact the dunal systems, which are threatened by trampling. However, tourism does not pose the greatest threat to the Park's habitats and species. Rapid urban development in the city of Al Kala (which has grown by 30% from 1998 to 2002) poses one of the most serious threats to the Park, for it carries in its wake a range of degradations, like hunting, the collecting of birds' eggs, etc. Another serious threat results from the draining operations carried out in the context of agricultural and other development and from the pollution of lagoons and sea water by the pesticides used on neighbouring cultivated land. The Park's budget is insufficient, its personnel lack training and its technical equipment and vehicles are in a bad state of repair.

The Gouraya National Park. Covering an area of 2,000 ha, the Park is composed of land, coastal (including beaches, cliffs and caves) and marine ecosystems. Its flora is very diverse; it is worth noting that it is the only station with an arborescent euphorbia. Land mammalian fauna comprises 24 species, including the Barbary ape, the common genet and the porcupine. The avifauna includes the Bonelli's eagle, the long-legged buzzard, the short-toed eagle, the griffon vulture, the Eurasian kestrel, the tawny owl, the Egyptian vulture and the eagle owl. Visits to the Park take place mainly in March and August, and popularisation and guidance efforts were made to reach both visitors and the population of Bejaia (Kabylia) and increase awareness. For this purpose, an ecological museum was opened to the public.

The main threats to the Park (listed in the Bibliography) come from urban development (not directly linked to tourism), buildings reaching right up to the Park's boundaries (Sidi Bouali), dunes and beaches being trampled by swimmers and rubbish being left in the Park by tourists.

The Reghaia Nature Reserve. These are permanent marshes lying behind the dunal systems at the mouth of the Reghaia River. It is an important area on the route of palearctic migrators, from among the ardeidae (little bittern, black-crowned night heron, purple heron), anatidae, sterninae (black tern) and many passeiformes (sedge warbler). It is also a wintering site for such rare species as the great cormorant, the western marsh harrier and the bluethroat. Human pressure is the source of the main threat to this area (500,000 tourists visit the area exclusively in the summer) because of the proximity of the city of Algiers and because of the lack of means and personnel training.

The Taza National Park. Covering an area of 3,800 ha, it includes "moist" forests, beaches and rocky coasts with caves. The Park harbours approximately thirty mammalian species (Barbary ape, porcupine, spotted hyena, ichneumon mongoose, weasel, wild cat) and an abundant avifauna with notable species including, in particular, the very much endangered Audouin's gull and the endemic and very rare Algerian nuthatch, the Desmarest's shag, the great cormorant, the common shelduck, the Bonelli's eagle, the short-toed eagle, the griffon vulture, the peregrine falcon, the tawny owl, the barn owl and the eagle owl.

The Park's main environmental problems are forest degradation as a result of fires (tourism with its barbecues bears part of the responsibility for these impacts) and illegal camping in the summer. The Park's budget is insufficient, its personnel lack training and its technical equipment and vehicles are in a bad state of repair.

## **Action taken**

The Algiers Coastal Zone Action Plan. Submitted in 1995 at the 10<sup>th</sup> Ordinary Meeting of the Contracting Parties to the Barcelona Convention, this Coastal Action Plan, which was launched at a workshop held from 15-16 September 2002<sup>9</sup>, concerns a 115-km coastline on either side of Algiers, and an area of 530,000 ha including 80,000 ha of sea bed. The wilaya inter-sector commission in charge of the elaboration and follow-up of the Coastal Action Plan was set up in early January 2003.

The main objective of the activity, as part of the Coastal Action Plan, is to help draw up a management plan for the Algiers coastal area by defining the main components of an action plan.

The conception of such a plan rests on the basic principles of integrated management, whose general objective is to introduce the conditions for a sustainable balance between the rational utilization of space and natural resources, including their conservation, on the one hand, and social and economic development imperatives on the other. As stipulated in the Agreement, this overall objective is conceived of within a long-term perspective. It consists in:

- proposing a sustainable development approach to the Algiers coastal zone in harmony with the environment's carrying capacity
- creating the conditions for the planning and resource management system in the area concerned.

Five priority areas of action have been identified:

mastering urban development and soil engineering

controlling waste water- and solid waste-related pollution

integrated management of water resources

protection of sensitive natural and cultural sites. The activities envisaged have two main objectives:

carrying out a pilot activity of inventorying marine biotopes, using instruments and techniques elaborated within the framework of the MAP

initiating and providing the groundwork and experience for continued conservation activity in the country's marine areas by formulating protection and management measures for the marine areas of the Coastal Action Plan's marine zone.

Planned work will include, inter alia, the following stages:

### ~~///~~ A detailed diagnosis

- Inventorying habitats and species, in particular those listed in the SPA Protocol Annexes (collection of existing information and data on the study area by using the technical tools elaborated within the framework of the MAP: Model classification of types of Mediterranean marine habitat, reference lists of types of habitat and species, model form for compiling information on the sites listed in national inventories)
- Assessing the effect of fishing and other human activities on marine and coastal biodiversity
- Studying the distribution of phanerogams and other formations of importance to the marine environment
- Compiling and interpreting results, assessing the sensitiveness of the surveyed area

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<sup>9</sup> PAP-PAC.ALG/2002/AL.1/1 (2002).

Drawing up the main components of a management plan for the marine part of the Chenoua site to the west and the Auguelli Island to the east.

Integrated Coastal Zone Management (ICZM). This kind of planning rests on the basic principles of integrated management, which aims at creating the conditions for a sustainable balance between the rational utilization of land and natural resources ? including the conservation of these? and the requirements of economic and social development.

These activities are supported by four "cross-sectional" activities:

- the information system
- analysis of sustainability
- training and participation
- financing strategy.

These themes will be backed up by several policy papers, including:

- a forward-looking sustainability strategy
- a strategy for concrete action
- a file on the necessary financing and investment for short-, middle- and long-term action
- recommendations for drawing up a sustainable coastal area management policy.

The Algiers Coastal Zone Coastal Action Plan only concerns a limited area of the Algerian coast the most densely populated and most problematic with regard to integrated management. The issue of tourism ? with its impacts on environments and species, and its integration into the integrated management of this part of the coast? was not dealt with in the proceedings, except in recommendations: "It is necessary to include the tourist sector as a additional activity, and integrate it in the Coastal Action Plan if possible."

Other actions, on different scales, are being carried out, of which one example is the setting up of a sustainable tourist development programme in the El Kala National Park, in which 5 distinct tourist development areas ? nature areas, local recreational areas, family tourist areas, etc.? have been defined and to which all actors ? from the public and private sectors and from among the population (ANDTRE: National Agency for the Defence of Tourism and the Environment)? have made a contribution.

**Overview**

Species	Site/habitat	Protected area	Sources of impact, level of disturbance and trends	Action taken or envisaged
Marine and benthic avifauna		El Kala, Taza and Bouraya National Parks, Reghaia Nature Reserve	Hunting, egg collecting, water pollution (not directly related to tourist activity)	No available information except in the Algiers Coastal Zone Coastal Action Plan, in which no early dealing with tourist aspects is envisaged
	Beaches and dunal environments		Trampling, overcrowding, infrastructure	
	Scrubland and Aleppo pine forests		Barbecue fire	
	All environments		Solid waste	
Posidonia meadows			Pollution (not directly linked to tourist activity)	
Cystoseira meadows	Habibas Islands			
	Barrier-reefs		Infrastructure, overcrowding	
	Vermetid platforms	Infrastructure, overcrowding		

Table 2: Algeria – Overview of impacts

**2.3. Bosnia-Herzegovina****Overall situation**

Bosnia-Herzegovina only has limited coastland ? extending over ten kilometres? on the Adriatic Sea. The only wetland close to the coast is Hutovo Blato ? a National Park and Ramsar site? located on a tributary of the Neretva River, approximately 40 km away from the mouth of that river.

**Sources of impact**

The main threat to the coast is the intense urbanization to develop seaside activities.

**Action taken**

Action to draw up a Trans-border Management Plan to protect the Neretva delta wetlands is under way in collaboration with Croatia (cf. § 2.4), though this is not directly linked to the problems of coastal urban development in Bosnia-Herzegovina (the Neretva delta is some 15 km from the Bosnian border).

**Overview**

Species	Site/habitat	Protected area	Sources of impact, level of disturbance and trends	Action taken or envisaged
	Littoral		Urban development	Trans-Border Management Plan in collaboration with Croatia to protect the lower Neretva wetlands

Table 3: Bosnia-Herzegovina – Overview of impacts

**2.4 Croatia****Overall situation**

One of the important features of tourism in Croatia is that 95% of accommodation capacity is located on the littoral and that this littoral is extremely long, made up of over 700 islands and of wetlands of international importance, such as the Neretva delta, and as regards habitats and biodiversity is remarkable in every way.

The country's main weaknesses as regards the management of coastal areas are the lack of skilled personnel, the relative lack of efficient enforcement of regulations (bearing in mind the extent of the littoral and the weight of tourist pressure), the absence of a true network of protected areas, and the lack of knowledge about certain environments.

**Sources of impact**

Overall, as well as the impacts mentioned in the following paragraphs, the National Report advances:

?? land environment

- urban development of beaches
- building of groins at sea and engineering of the rocky coasts on either side of bays to enlarge the beaches
- splitting up of habitats
- degradation of the sandy biotopes by removal of sand and trampling (risks for the horned poppy and *Calystegia soldanella convolvulus*)
- disturbance of fauna by visitors and their pets (dogs), important risks for an endemic lizard present in the Vis and Hvar Islands, the *Podarcis melisellensis* Dalmatian wall lizard

?? marine environment

- pollution and eutrophication of the water from accommodation centres with no plant for treating effluent, discharge of solid waste at sea
- removal of marine fauna by underwater hunting
- mooring of yachts in *Posidonia* meadows.

Other threats, not linked to tourism, hang over the marine biocenoses, as in Kornati (pollution of water by industrial and urban effluent, modernization of gear and increase in the fishing effort).

## **Impacts on habitats, species and protected areas**

There are ten protected areas on the Croatian littoral, 5 National Parks and 5 Nature Reserves: the Brini Islands National Park, the Kornati Islands National Park, the Krka National Park, the Paklenica National Park, the Mljet National Park, the Limski Zaljev Nature Reserve, the Lokrum Nature Reserve, the Malostonski Zaljev Nature Reserve, the Neretva Delta Nature Reserve (Ramsar site), the Suma Dundo na Rabu Nature Reserve (Dundo Forest-Rab Island).



The Kornati islands National Park. D. Grlica

Apart from the Neretva Delta Nature Reserve and the Paklenica National Park, these various protected areas are occupied by plant formations from different stages of evolution of the scrubland. Some of the islands still present scraps of evergreen oak forest (Brioni) and species that bear witness to a denser forest cover (a few wild olive trees and evergreen oaks in Kornati). The Neretva Delta presents plant formations that are typical of wet environments, whereas forest formations on acid substrata occupy most of Paklenica Park.

Terrestrial fauna on the islands are basically rodents, Mustelidae and reptiles, some Ungulata having been introduced on some of them. The Krka National Park has a more diversified land mammal fauna, such as the roe-deer, the boar and the golden jackal. The avifauna is much richer, but restricted to certain sites. As well as certain threatened species like the griffon vulture, Audouin's gull and Eleonora's falcon, it essentially consists of migratory birds, passerines, limicolous species and birds of prey. Among the island sites, the Krka avifauna is more interesting: golden eagle, peregrine falcon, great bittern, Egyptian vulture, etc.

Of course, the Neretva Delta presents a particularly rich avifauna: pygmy cormorant, various species of duck, ferruginous pochard, Rallidae, Ardeidae, etc.

Paklenica Park, because of the very different biotopes it presents, has a completely different fauna: wolf, fox, bear, wild cat, roe-deer. The avifauna is equally remarkable: griffon vulture, golden eagle, eagle owl, rock nuthatch, black-eared wheatear, blue rock thrush, etc.

The marine biocenoses are extremely rich: Posidonia and Cymodocea meadows, corals, sponges, molluscs (scallop, Noah's ark, etc.) and crustaceans (crayfish) and pelagic fish (Mediterranean moray, dentex, John Dory, striped mullet). The monk seal has been sighted several times in the waters of Mljet Park.

The National Parks and Nature Reserves of Croatia's littoral are generally well provided with infrastructure (hotels, guest-houses, camp-sites, interpreting centres – Kornati, Cres Losinj<sup>10</sup>) and are much sought-after by Croatian and foreign tourists. Krka has more than 400,000 visitors a year, Brioni, Kornati and Lokrum nearly 200,000 and Mljet 40,000, but basically they all come in the

<sup>10</sup> Caput Insulae–Beli Eco-Centre (ECCIB): [http://www.caput-insulae.com/eng/about\\_us.htm](http://www.caput-insulae.com/eng/about_us.htm).



summer months. This throng is constantly growing and is the main threat to protected areas, since carrying capacity may well be exceeded in some of them. As well as the problems of trampling the plants, disturbing the fauna, managing liquid effluent (Paklenica, Malostonski Zaljev) and managing solid waste (Paklenica, Limski Zaljev), fires, often accidentally started by tourists, are also an important factor in the degradation of the terrestrial ecosystems (Mljet, Lokrum, Suma Dundo na Rabu). Lastly, hunting, not necessarily due to tourists, is certainly a problem in the Neretva Delta. Although some of these areas are well supplied with personnel and equipment (Brioni), others do not have enough staff (Krka, Paklenica, Limski Zeljev, Kornati).

Other, equally remarkable, sites have not yet been (or are being) classified as National Parks, such as the Cres-Losinj archipelago, where the Kruna and Podokladi reserves allow very diversified bird populations to be protected – over 200 species, including 90 nesting: griffon vulture, golden eagle, short-toed eagle, peregrine falcon, honey buzzard, eagle owl, blue rock thrush, etc. The marine environment also has a remarkable fauna, including a 50-strong population of bottlenose dolphin.

Also in Cres-Losinj, tourist overcrowding is the most important threat to the environment and biodiversity.

### **Action taken**

Regional Development Programmes have been prepared in various sectors of the Croatian littoral, like that in the Šinebik-Knin and Zadar areas (World Bank)<sup>11</sup>. This programme aims at encouraging an economic revival in these regions by job creation, strengthening skills for managing regional resources, etc. This project always bears in mind the existence of the 2 National Parks of Krka and Kornati and of many coastal and island reserves.

Various types of project are being introduced as part of the PAP<sup>12</sup>:

Study on wetlands in the Adriatic Islands with the aim of assessing, within the framework of the Bern Convention's Emerald Network<sup>13</sup>, the threats that hang over these habitats. It must allow examples to be provided for maintaining natural conditions in these habitats and preventing future degradation due to human activity

Managing the Conservation of Biodiversity Zones on the Croatian Coast. The aim of this project is to protect island and marine coastal biodiversity in a participatory, economically sound way that is integrated within the country's economic needs, by integrating the principles of biodiversity conservation within the plans for the sustainable development and management of the coastal areas

- Preparing a Trans-border Management Plan (Bosnia-Herzegovina) for the Lower Neretva: inventorying basic data, preparing a plan, involving local people
- Implementing the Cres-Losinj Archipelago Environmental Management Plan. The aim is to set up a protected area as an integrated environmental management tool and to create an agency entrusted with putting this into effect
- Coastal Zone Environment Management Project (as part of the Project of the Adriatic Sea Environmental Master Plan (ASEMP). ASEMP is intended to provide a strategic framework for investment decisions in the field of environmental infrastructure and a guide to policy coordination for the sustainable economic development of the region
- Several other projects concern the creating of an Environment Office, strengthening skills, developing a national environmental education system, strengthening staff at local level, etc.

### **Overview**

<sup>11</sup> Šinebik-Knin and Zadar Counties : Framework for a Regional Development Vision.

<sup>12</sup> Ministry of Environmental Protection and Physical Planning – Priority Action Projects (information on project status/international financing) – January 2002.

<sup>13</sup> The Emerald Network is a network of areas of Special Conservation Interest (ZISC) which must be set up on the territory of the Contracting Parties to the Bern Convention and the Observer Countries, particularly the countries of Central and East Europe and EU Member States.

Species	Site/habitat	Protected area	Source of impact, level of disturbance and trends	Action taken or envisaged
Birds of prey (griffon vulture, golden eagle, short-toed eagle, peregrine falcon, honey buzzard, eagle owl)		All island and coastal protected areas	Overcrowding over a short summer period	<p><b>-Capacity-strengthening</b></p> <ul style="list-style-type: none"> <li>-Developing a National Environmental Information System</li> <li>-Strengthening staff at local level</li> <li>-Various actions taken within the PAP framework:</li> <li>-Study on wetlands</li> <li>-Managing the Conservation of Biodiversity Zones</li> <li>-Cres-Losinj Management Plan</li> <li>-Coastal Zone Environment Management Project (ASEMP)</li> </ul>
	Relic forest with evergreen oak ( <i>Quercetum ilicis</i> ) and various evolutionary phases of the scrubland Marine biocenosis	Mljet, Lokrum, Suma Dundo na Rabu	<p>Fire caused by overcrowding</p> <p>Overcrowding, diving</p>	
Avifauna	Wetlands	Neretva Delta	Hunting, water pollution	Trans-border Management Plan (Bosnia-Herzegovina) for the Lower Neretva

Table 4: Croatia – Overview of impacts

## 2.5. Cyprus

### Overall situation

The impacts of tourism on the environment generally and on habitats and biodiversity in particular have long been identified. As early as 1995, a joint World Bank/European Union Report<sup>14</sup> highlighted the problem, while recalling that Cyprus was economically dependent on tourism. The Report recommended a new tourist development policy, taking account of the coastal zone's limited carrying capacity.

Even though the Cypriot coast has admittedly remained at sufficient quality level, many high-value sectors ? at both biological and tourist level? are now greatly affected by human activity and tourist activities now have considerable impact on local species and habitats. The main reason for such considerable impact lies in the fact that coastal resources have great ecological and biological value as well as high economic value, and that the latter is directly dependent on the former.

<sup>14</sup> World Bank / METAP, (1992 & 1995).

These parameters are the root cause of the rapid development of coastal tourism and consequent degradation of sandy coasts and wetlands.

### **Sources of impact**

The main sources of impact listed in the National Report are, for the most part, related to privatization and to increasing coastal urban development. In view of the growing value of coastland? as a result of the considerable development of tourism? many areas of "untouched" land, previously devoted to agriculture, became the objects of real-estate speculation, whether for the construction of private villas or hotel complexes. This urban development/privatization of coastland was coupled with the building of roads and the development and over-exploitation of beaches, even though they were protected as reproduction sites for turtles, the building of small harbours, seawalls, groins and breakwaters? regardless of their long-term impacts such as coastal erosion? and various kinds of disturbance, such as night lighting, the use of power-driven gear to clean up beaches, trampling, etc. This resulted in the break-up of habitats, for the hotel complexes had been set up in the most interesting sites from the perspective of seaside tourism. However, it would appear that coastal pollution resulting from tourist installations was not of great consequence. Practically all the hotels, in particular the most recent ones, possess their own facilities for the treatment of waste water, and use the treated water for watering their gardens.



Increasing coastal urban development : Limassol. Andreas Demetropoulos

Land management problems stem from two main causes:

- Poor harmonisation between environmental and socio-economic objectives, due to the lack of a general, integrated vision in which priority is given according to long-term objectives. This is the case in the Akamas Peninsula, where it has not yet been possible to implement sustainable (environmental) management and (tourist) development (cf. below) though the matter has been under discussion for ten years. The same problem has cropped up again in the case of the Limni beach (a reproduction site for the loggerhead turtle without protection status), in which a tourist development project is envisaged by the town council of the city of Polis, and about which the attitude of the administration (at both local and national level) shows that the protection of habitats and coastal biodiversity is only acceptable as long as it does not conflict with immediate economic interests.
- Overlapping between the spheres of competence of the different administrative bodies, whose competencies are split up and lack clear dividing lines, with the result that investors and tourist operators use this vagueness to sidestep or simply fail to abide by the regulations, and can acquire land to build hotel complexes without taking any notice of the recommendations

included in documents issued earlier, or even be granted tourist concessions on legally protected beaches.

### **Impacts on habitats, species and protected areas**

Cyprus has defined many types of protected area: Coastal Zones and Protected Natural Areas (Cape Cavo Greco, Makronissos, Dasos Ranti and the Akamas Peninsula), Protected Sites (the Pomos Cliffs, the Liopetri River Estuary, the Cavo Greco and the Pissouri Cliffs) as well as other sites with different statuses. A number of coastal sites<sup>15</sup> like Cape Pyla, Cape Andreas, the Klides Islands and the Nissia marine area, etc. appear on the Natura 2000 list.

The Pissouri Cliffs, near Paphos, is a renowned site for watching sea birds such as the yellow-legged gull, the eastern sub-species of the Eurasian jackdaw, etc. It is also a tourist site publicised by tour-operators as untouched by mass tourism. The main impact is disturbing the birds.

The protected areas of the Akamas Peninsula<sup>15</sup> harbour an important number of habitats notable for their diverse fauna and flora, some of whose species are endemic, rare and/or protected by the Bern Convention (5 plant species, 2 reptile species and 7 bird species). As an example, the Lara-Toxeftra Nature Reserve, which is located in this peninsula, includes many insectivores such as the long-eared hedgehog and the Cyprus white-toothed shrew, the latter being endemic. The site also harbours many reptiles and a number of endemic species and varieties of butterfly. Its beaches are reproduction sites for the green turtle and the loggerhead turtle. In some years monk seals were also sighted there.

As early as 1981, measures were taken to control commercial fishing, and trawling was prohibited in an area extending to 150 feet from the shore to protect underwater meadows. In 1989, the government issued an eighteen-month moratorium on coastal tourist development, so as to have time to prepare new legislation relevant to this field. New regulations subsequently established strict control in the entire territory over any building intended for tourism within a strip of land extending to three kilometres from the shore and prohibited any new building of the kind outside the areas allocated to this end.

On the Lara Reserve site, regulations prohibited camping, the use of deck chairs and parasols, the circulation of vehicles and night strolls in order to protect the reproduction sites of marine turtles. These regulations also prohibited boats from entering and mooring and strictly controlled fishing (angling). A programme for the protection of turtle nests in situ and the follow-up, tagging and collection of eggs for hatchery reproduction was being implemented there.

In 1992, at the request of the Cypriot government, a project jointly financed by the World Bank (METAP) and the European Union drew up a Development Plan for the Akamas Peninsula, which was published in 1995. The plan demarcated the strictly protected areas, the buffer zones and the tourist development areas (eco-tourism, farm tourism, etc.). The protection and management of the Akamas Peninsula environment were given high priority, and the more sensitive southern areas of the Peninsula were designated White Areas in which any development was prohibited prior to the implementation of the Development Plan.

Other measures were taken, for instance protecting such coastal forests as those of the Liopetri River (89 ha), Cape Greco (325 ha) and the Akamas Peninsula (7,140 ha.).

However, tourist activities have continued to develop all over the peninsula with the privatization of portions of the coastland, the building of hotel complexes and roads, the opening of Lara beach to the public, the use of power-driven gear to clean up beaches, etc.

As a result of this, impacts on sites and protected species are considerable: break-up of habitats (in some sectors protected sites alternate with privatized areas and beaches with full amenities), disturbing animals when they lay their eggs (lighting and night strolls on the beaches), destruction of nests (use of power-driven gear to clean up beaches), etc.

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<sup>15</sup> Council of Europe (2002).

The Larnaca Lakes. A Permanent Hunting Reserve, this site is made up of 4 lakes with fluctuating salinity, depending on the season. Its flora consists mainly of brackish water plants. A host of small crustaceans make up the aquatic fauna (brine shrimp, *Branchianella spinosa*) and form the alimentary basis of the avifauna. The site is an important wintering site for waterfowls, like the greater flamingo, the anatidae (Eurasian wigeon and northern pintail), the common shelduck, the glossy ibis, etc. As it is close to Nicosia and Larnaca, the site attracts many visitors particularly interested in watching the greater flamingos in the winter season. Impacts are caused mainly by overcrowding and the disturbance caused to birds. The urban development of the Lake's shores is also to be noted.

Lake Limassol (Akrotiri). This is a natural depression, which is wet from December to July (and dry outside that period) and part of which is a Permanent Hunting Reserve. It is an important wintering site for palearctic migrators: the greater flamingo, the northern pintail, the Eurasian wigeon, the common shelduck, the glossy ibis, the little bittern and the black-crowned night heron. The nearby rocks are a nesting site for two important species of bird of prey, the Eleonora's falcon and a subspecies of the peregrine falcon. The land fauna is also notable, particularly for a number of threatened batrachians (green tree frog, a number of *Hyla arborea* ssp. Savignie subspecies, *Rana ridibunda*, green toad). Many visitors, both from inside the country and from abroad, come to the site every year, especially during the period when the lake is full of water and hosts migratory birds. This causes disturbance, trampling of the flora, shore erosion, etc.

### **Action taken**<sup>16</sup>

Many kinds of action have been taken recently to stop the degradation of the Cypriot coast.

Cyprus possesses wide-ranging legislation for drawing up development programmes, and this includes coastal development. These programmes cover all sectors of activity, including tourism. However, coastal development planning is hampered by many shortcomings and gaps: It is sector-based (in terms of both geographic area and content), responsibility is split up, coordination between conservation and development is poor, management tools that can help integrate all aspects of development are unavailable, carrying capacity is often exceeded, and strategic vision ? no strategic impact studies? is often lacking. All these factors have led to the "CAMP<sup>17</sup> Cyprus" initiative, intended to introduce an Integrated Coastal Area Management approach and promote the use of planning and management tools which will help consolidate national coastal area planning and conservation policy.

Moreover, a strategic study on tourist development for the period 2000-2010 was approved in 2001, and its main lines were that high-quality tourist development was to be coupled with protection of the environment.

### **Overview**

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<sup>16</sup> PAP/RAC. (2002).

<sup>17</sup> Coastal Area Management Programme - MAP (Mediterranean Action Plan).

Species	Site/habitat	Protected area	Sources of impact, disturbance level and trends	Action taken or envisaged
Green turtle Loggerhead turtle Monk seal	Beaches	Set of protected areas in the Akamas peninsula	Development of beaches, night lighting, use of power-driven gear to clean up beaches, various kinds of disturbance	<ul style="list-style-type: none"> <li>- Completed: Strategic Study on Tourist Development for 2000-2010</li> <li>- Ongoing: Coastal Area Management Programme (CAMP Cyprus)</li> <li>- Real need for practical protected area management</li> <li>- Clarifying the attributions and competencies of the various administrative departments and coordinating between them</li> </ul>
Migratory waterfowl		Larnaca Lakes	Overcrowding, disturbance, urban development	
Migratory waterfowl, birds of prey, batrachians		Lake Limassol	Overcrowding, disturbance, erosion	
Loggerhead turtle	Limni Beach		Development of beaches, night lighting, use of power-driven gear to clean up beaches, various kinds of disturbance	
Sea birds and other rare bird species	Pissouri Cliffs		Disturbance	

Table 5: Cyprus – Overview of impacts

## 2.6 Egypt

### Note

Egypt's National Report only provides geographical and numerical data on the development of littoral tourism: number of tourists, number of bed-nights, occupation percentage, etc., all very interesting but nothing on the threats to and impacts on the environment.

Between 1985 and 1988, Egypt created three protected areas on the Mediterranean littoral, one to protect semi-desert ecosystems, and the other two to protect wetlands. There was no marine protected area. The government seem to envisage creating new protected areas and strengthening the institutions.

But:

- Egypt has 280,000 hectares of wetlands and coastal lagoons, i.e. over 25% of all the wetlands along the Mediterranean littoral, including two important Ramsar sites
- the SAP BIO Document<sup>18</sup> states in Annex 4 that urbanization and tourism on the littoral are the main threats hanging over the littoral environment: infrastructure capacity, pollution from waste water, eutrophication of water, removal of sand
- very many documents, however, deal with impacts linked to the development of agricultural improvement, infrastructure and tourism (for example<sup>19</sup>)

<sup>18</sup> UNEP/MAP/RAC/SPA (2003).

<sup>19</sup> The Ramsar Convention on Wetlands - National Report of Egypt for COP7: "The building of the Coastal Highway along the sand bar of Lake Burullus will open the area up for agriculture and tourism development, which might increase fresh water inflow into the lake and cause pollution unless mitigation measures are taken to treat the drainage water. [...] Lake Bardawil could potentially be impacted by the North Sinai Development Project, which is a large-scale agriculture

- many projects have been, are being, and will be implemented to protect environments and conserve littoral diversity, particularly, though not solely, linked to the threat caused by the development of tourist activity, like (for example) the Conservation of Wetlands and Littoral Ecosystems in the Mediterranean Region project, funded by the UNDP (EGY/97/G33) and put into effect from 1999 to 2003 (MedWetCoast)<sup>20</sup>.

In the face of such a lack of information in the National Report on the subject under consideration, it was not possible to make a sufficiently well-argued overview for this country.

### **Overview**

Species	Site/habitat	Protected area	Source of impact, level of disturbance and trends	Action taken or envisaged
	Wetlands, sandy and dunal littoral		Urban development, infrastructure, pollution from untreated waste water	

Table 6: Egypt – Overview of impacts

## **2.7. France<sup>21</sup>**

### **Overall situation**

Resort tourism is already very widely developed, almost all sites, whether on rocky or sandy coasts, having already been made best use of. This valorization is old and a certain loss of fondness for mass resort tourism has now appeared. Several local communities are envisaging reviewing their policy of developing and improving the littoral, focusing more on environmental protection aspects and on the environments, even rehabilitating degraded environments.

### **Sources of impact**

#### Overcrowding

The main source of impact, at both terrestrial or marine level, is overcrowding. As regards the land part of the littoral, this loosens the dune plants and erodes the rocky areas, because of the ever-growing number of ramblers' paths.

The coastal dunes in the Golfe du Lion are thus highly degraded every summer by their thousands of tourists, although explanatory boards have been put up and strategies used (ganivelles) to fix the sand and protect the vegetation.

As regards the marine part, the overcrowding of vermetid platforms (trampling) on the Provençal coast is extremely harmful to these very fragile environments. The great number of dives is accompanied by every kind of degradation. The development of sailing causes locally important

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reclamation project in North Sinai. There is also increasing pressure to establish tourism developments along the lake shore."

<sup>20</sup> It concerns the protection of the wetlands of 6 Mediterranean countries (Albania, Egypt, Morocco, the Palestinian Authority, Tunisia, Lebanon) and in Egypt concerns the Zanaik, Burullus and El Omayed sites. Its main objective is to establish inter-ministerial coordinating mechanisms at national and local level, develop demonstration action, and make various groups of social and economic actors aware of and involved in managing, and the sustainable valorization of, biodiversity. It must be put into effect by setting up a National Committee on Wetlands, carrying out supplementary diagnosis studies, developing databases and SIG, and preparing provisional management plans on the three sites.

<sup>21</sup> France not having provided a National Report, this chapter only mentions the protected areas, environments, flora and fauna, for which information on the impact of tourist activity has been collected from the writing on the subject.

damage to *Posidonia* meadows (mooring) and the marine biocenoses near to the littoral (pollution from the discharge of waste water).

Building infrastructure on the sandy littoral

Building infrastructure out at sea or on the sandy littoral, either to develop pleasure ports or beaches or to fight against the erosion of these very beaches, or to give access to these beaches, is one of the most important impacts linked to tourist activity. The phenomenon is complex.

Hydraulic developments (dams) built on the Rhône have given rise to a very marked reduction in the sediment brought down to the river delta. The balance between what is brought down (by the river) and what is exported (by the coastal drift) has been destroyed<sup>22</sup>. The sand, eroded along the Camargue coast, which used to feed the Languedoc littoral to the west, itself in a subtle state of accretion/erosion balance, has been blocked by port work created for the Port Camargue marina and the pleasure ports in the Golfe du Lion. The Languedoc littoral is thus now in a state of permanent erosion, and groins have had to be built out to sea to slow down this phenomenon.

This has been worsened by the urban development of the littoral dunes and the building of roads parallel to the shore immediately behind the dunes that prevent the 'free circulation' of sand, particularly its re-mobilization during storms. Thus, the dune ridge totally disappeared in several places between the Grande Motte and Carnon resorts during the storms of the late 1990s.

The situation is identical at the mouth of the Orb, a little coastal river lying further to the south, where the Valras-plage resort, built in the 1970s-80s, has seen its beach gradually disappear.

### **Impacts on habitats, species and protected areas**

France has only one National Park on the Mediterranean littoral (an international marine park with Italy is being created in the Bouches de Bonifacio in Corsica with the Maddalena Islands in Sardinia – cf. below), seven marine reserves and a large number of coastal terrestrial reserves (basically wetlands, without mentioning the land acquired by the Conservatoire du Littoral).

Port-Cros National Park

The Port-Cros National Park extends over one of the three big islands that, with Porquerolles and Levant, make up the Hyères Islands archipelago, lying off the Var coast in the Mediterranean. It should be noticed that the Park is the manager of several natural areas lying outside the Park, belonging to the state and the Conservatoire du Littoral.

The marine area of the Park itself extends around the island and its three islets out to 600 metres offshore, thus covering a 1,300-hectare belt, with a depth of never more than 100 metres. Two bays offer natural shelter to sailors and three little beaches offer easier access to the sea.

The main island is covered with very developed scrub dominated by Aleppo pine, sometimes giving way to evergreen oak forest or littoral bush on the seashore. A few special ecosystems are also present: dunes at the back of the beach, temporary ponds, freshwater or brackish wetlands.

The terrestrial animal population presents some remarkable species such as *Discoglossus sardus*, and *Phyllodactylus europaeus*, endemic in Port Cros, Corsica and Sardinia. Several species of chiroptera, like the bent-winged bat and the long-eared bat, are present in Port-Cros and Bagaud. Most are permanent and breed in the archipelago. The avifauna includes beacon species and nesters like the peregrine falcon, the common Scops owl, the Cory's shearwater, the Balearic shearwater and the Dartford warbler. Many migratory birds stay in the archipelago in the spring and in the autumn.

The underwater domain extends over 1,300 hectares and many species of planktonic fish, predator fish (mackerel, leerfish, tunas, amberjack) and cetacean (bottlenose dolphins, striped

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<sup>22</sup> The Camargue coast, from the main mouth of the river in the east up to the Petite Camargue in the west, is thus now in a situation of permanent erosion and the groins that have been built along it have not slowed this phenomenon down. This situation is not linked to any particular tourist activity, but the long-term impacts on the hydrosedimentary balance of the Camargue, on the ecosystems generally, on flora, fauna and the protected areas, is in the medium term extremely disquieting.



dolphins) are present there or visit the area. Offering a great variety of landscapes, it contains two main ecosystems that are particularly rich:

- the Posidonia meadow extends down to a depth of forty metres and covers over 500 hectares out of the 2,300 hectares of the Park's marine area
- the **Cystoseira forests cover about 100 hectares**
- the vermetid platforms are little developed at the surface (1 to 2 hectares) but well along the coast
- the coralligenous community (20 hectares) develops on rocks from about twenty metres down. It is made up of many fixed invertebrates (colonies of gorgonians, bryozoa and sponges). It contains important populations of dusky grouper and other permanent or seasonal benthic species. The quality of its landscapes is one reason why it is so attractive to divers.

Two invasive species are present in the archipelago:

- *Caulerpa*, a tropical alga that was accidentally introduced, has been present in the National Park since 1994. Every year, the mattes are localized and destroyed. Up to now, the destruction of the mattes has been successful in that none have reproduced. It would seem that mooring is the cause of this undesirable presence
- *Carpobrotus*, a vigorously-growing exotic species, is a serious threat to the native rock plant communities developing on the coastal strip.

Port-Cros has a village of some fifty permanent residents, whose activity is linked to summer tourism. Human pressure on this area is essentially a summer phenomenon. During the months of July and August, nearly 3,000 visitors disembark every day. In all, there are thought to be 120,000 visitors a year, plus the 8,000 sailing boats in the port and mooring, thus representing a total of over 200,000 visitors.

The impacts suffered by the environment are a direct result of this summer overcrowding:

- at the terrestrial level, there is trampling, both of the area at the back of the beaches and in the scrub (a lot of paths). Forest fires also represent a very major threat to the land plants and a fire risk management plan is being ratified
- at the marine level, degradation of the seabed (*Posidonia* meadows) because of mooring on a level with the sheltered beaches
- pollution by water tourism: around Porquerolles Island during peak periods up to 1,000 moored boats can be found, plus about 1,000 boats with people aboard in the port, representing a total 10,000 inh. eq. of untreated waste. The impacts of this pollution are all the more important in that they are at their height from May to September, i.e. at a vital period in the cycle of the species and ecosystems (period of growth and reproduction).

#### Scandola Nature Reserve

The Scandola Nature Reserve, in north-eastern Corsica, covers 1,000 hectares of sea and 919 hectares of land, 70 of these as an Integrated Reserve. The environments are very diversified: marine environments with crumbly and rocky seabed, *Posidonia* meadow, littoral cliffs, islets, beaches, rocks, scrub, rocky outcrops and ridges, wetlands and valley bottoms, as is the flora: 450 algae, 600 higher species, 34 of them endemic; 18 species protected at national level, and fauna: 2 marine invertebrates that are protected at European level, 125 species of fish, 3 amphibians, 7 reptiles, 230 species of bird, including 60 nesting, 14 mammals, including 6 bats.

Access to the Reserve is regulated, and boats can only be parked for 24 hours. Nevertheless, impacts linked to underwater diving are not negligible, and controlling the area requires sizeable means.

The Camargue National Reserve: This is an Integral Nature Reserve and a Biosphere Reserve. It is the biggest wetland in the Mediterranean, with a surface area of 85,000 hectares, including a sandy littoral and dunes. Over 300 species of bird have been counted there (greater flamingo, squacco heron, collared pranticole, gull-billed tern, etc.), plus ten or so species of mammal, 13 species of

reptile, and 6 species of batrachian. Some one million people visit the Camargue every year, 150,000 of whom go to the Reserve's accessible sites between April and November for bird-watching. The Reserve is well monitored, which prevents many impacts, but camping, some driving of all-terrain vehicles on the beaches and the penetration of some visitors into forbidden areas, are the main pressures due to tourism (above and beyond other threats like erosion, management of water for agriculture, air pollution by industries not far away, hunting, etc.).

**The Cerbère-Banyuls Reserve:** This 650-hectare Marine Reserve includes a 65-hectare integrated protection area off Cap Rédéris. The seabed is rocky, with vermetid platforms alternating with *Cystoseira* seabed. Pre-coralligenous and coralligenous formations made of red calcareous algae occupy the bed at 30-40 metres. The non-rocky bed is occupied by *Posidonia* meadows. The marine fauna is extremely rich, especially in the coralligenous communities. The entire region is a major tourist destination and the Reserve is subjected to great tourist pressure in the summer months. Pollution by waste water (it is not yet completely connected up to the sewage treatment plants) is also a serious problem.

#### Other protected areas

Among the many other protected areas we can mention the Bagnas Reserve, the Carry-le-Rouet Reserve, the Blue Coast Marine Park, the Estagnol Reserve, the Fango Biosphere Reserve, the Finocchiarola Islands Reserve, the Mas Larrieu Reserve, etc., all with different status, and for which overcrowding in the summer months is the main threat to the environment, the flora and the fauna.

#### **Action taken**

Various types of action have been taken over the last twenty years or so, at national level or at that of each protected area, as regards both regulations and land. At protected area level, two examples are given below: the regulations of the Port-Cros National Park management plan; the creation of the Bouches de Bonifacio International Marine Park between France and Italy, which – even if its gestation was long-drawn-out (which after all seems normal) – is a good example of what can be done as regards trans-border cooperation (cf. §4.5). At regulatory and land level, two 'tools' that are almost unique on the shores of the Mediterranean completely changed the rules of land occupation in the littoral towns: the 'Littoral' Law, and the Conservatoire du Littoral.

Finally, aware that town planning mistakes had been made, and because a certain lack of interest was being shown in the old resorts that did not respect the environment, certain local groups started to think about 'requalifying' these resorts, particularly by concrete town planning action.

#### The Littoral Law

Once 'vacant land', the littoral has become a stake and the place for a host of activities. This development led the law to gradually lay down a certain number of rules ending in the passing of the 'Littoral Law', on protecting, developing and making best use of the littoral.

The Littoral Law determines conditions for use and making best use of land, marine and lake areas. It applies to the districts that lie along the shores of oceans, seas, salt ponds and natural or artificial stretches of water covering over 1,000 hectares.

This Law is a land and urban development law which aims at:

- protecting the biological and ecological balance, and preserving sites, landscapes and the cultural and natural heritage of the littoral
- preserving and developing economic activities that are linked to water nearby
- implementing a research and innovation effort that focuses on the specific features and resources of the littoral.

Various provisions of the Law help protect heritage and landscapes:

- mastering town planning: ribbon development or as a new hamlet integrated within the environment, but restricted by the creation of breaks in urban development and in the areas near the shore; no building within a 100-metre coastal strip (calculated starting from the upper limit of the shore)

- strict protection for the areas and natural environments that are most characteristic of the littoral's natural and cultural heritage
- elaboration of models for making best use of the sea (SMVM)
- the creation by the state in 1975 of the Conservatoire de l'espace littoral et des rivages lacustres, for a land policy that would protect the littoral area. After acquiring the land, the Conservatoire subcontracts (to the districts or to other structures) the management of the area (cf. below).

#### The Conservatoire du Littoral

The Conservatoire du Littoral is a public institution, set up in 1975. Its aims are to:

- carry out a land policy to protect the littoral area, have natural sites respected, and maintain the ecological balance, aiming at definitive protection for natural areas and landscapes on the seashore and the shores of lakes
- make the wider public aware of the quality of the littoral environment
- start talking to local councillors (inter-district) and decision-makers with a view to better defining quality criteria for development, according to their integration into the environment, from the sustainable development angle
- organise debates with all competent organisations and public figures to choose a long-term tourist policy
- possibly, participate in developing the sites.

The Conservatoire du Littoral thus acquires fragile or threatened land by friendly agreement by pre-emption or, exceptionally, by compulsory purchase. The Conservatoire du Littoral has from the beginning acted as an estate agency. Sixteen regional delegates go back and forth across the land allocated them, discover land that is interesting for its ecological or landscape qualities, make bids, and explain to the (sometimes sceptical) councillors the interest of 'freezing' their natural areas.

To carry out its task it has legal and financial means that allow it to acquire the ownership of the land it intends to protect: purchases, gifts, legacies, friendly acquisitions, pre-emptive rights (by substitution for the right of the département) or even compulsory purchases, for reasons of public utility, and subscription campaigns. The Conservatoire's land is inalienable and will be handed down to future generations, for its status can only be downgraded by Order of the Council of State, made at the suggestion of the Board of Directors of the Conservatoire, ruling with a three-quarters majority. Its annual budget is 30M€, of which 25M€ is set aside for buying and developing sites. The major part of these means come from the state, with a tiny part coming from the local communities, European funds and private funds. After carrying out the necessary repair work, by the districts or the départements, it hands over the management of the land to the local communities or to associations.

Today, the Conservatoire du Littoral owns about 10% of the French coastline (Atlantic Ocean included).

Simultaneously, Shore Councils (Conseils de rivages) were formed. Composed of local councillors, their role was to advise and suggest on land policy and as regards policy and management.

#### Port-Cros National Park regulations

The Port-Cros National Park has a development plan and a management plan; measures to reduce impacts on the terrestrial environment have been implemented:

sensitive plant populations are protected by channelling visitors. 'Ganivelles' – a kind of little barrier with wooden stakes at intervals – mark out the areas that must be protected while retaining the bioclimatic features needed to develop the concerned biocenoses

to correct erosion that could be accentuated by visitors' passing feet, the paths have steps and micro-levelling treatment

to reduce overcrowding, negotiations are under way with the operators of shipping lines to reduce the daily number of visitors.

As in all National Parks, impacts on living species are reduced by rules that prevent removal or disturbance. The islets are paid particular attention and landing in Bagaud is banned, so that it remains a special place for studying and strengthening shearwater populations (there are terrestrial, land and mixed caves in Bagaud and the south-western coast of Port-Cros used – until 1935 – to have monk seals).

At sea, the first bans dealt with underwater hunting and towed nets. Since then, new regulations have allowed tourists to be welcomed in optimal safety conditions while the quality of the ecosystems is protected by permitting harmonious, shared use of this area:

- zoning marks out sectors where mooring, commercial fishing, summer diving and sport fishing is forbidden
- motorized water vehicles (water scooters, etc.) are forbidden in the entire maritime part of the Park to maintain the quality character of the site
- diving, done by 30,000 divers per year, is the subject of a partnership with the local structures that organise this activity. Each year a charter is signed to supplement the regulations in force. This contract agreement associates professional users with managing the area and makes the implementing of on-the-spot measures more effective. It is necessary to control this activity, since it, like fishing, is near the threshold of what can be accepted
- a Charter, decided on with local fishing tribunals, is also elaborated with commercial fishermen in the form of internal regulations that are specific to Port-Cros. In particular, it provides for restrictions concerning size of boat, number and mesh of net, hours and areas for fishing and a yearly, precise assessment of catch. The annual takings of 20 tons/year represent a limit that must not be exceeded if fish populations are to last.

And so teams of warden/monitors patrol regularly all the land and sea sectors of the Park, more frequently in the summer according to the number of tourists or local professionals. Systematically, oral and written warnings and fine-stamps are given and offenders are booked according to the seriousness of the offence.

A programme to inform and raise the awareness of tourists has been introduced. 'Park gate' panels are displayed at the main landing stages to inform visitors before they leave for Port-Cros about the bans and about the possibility of discovering the riches of the National Park. When they arrive on the island, a Park information office provides its own documentation and informs visitors about the various discovery activities.

Created in 1979, an underwater route, with professional monitors to conduct the visitors, allows each visitor to freely discover for himself the rich Mediterranean coastal fauna and flora. Underwater boards and submersible plaques supplement this information for a public made up of holiday-makers, families and children.

#### The Parc Marin International des Bouches de Bonifacio

The future Parc Marin International des Bouches de Bonifacio (PMIBB). The project of a PMIBB was jointly envisaged in 1998 by the Italian and French Ministries of the Environment, within the framework of the Interreg. II community initiative programme. The idea of creating this trans-border marine park came after the Fenès, a freighter under the Panamanian flag, sank near the Lavezzi Islands Nature Reserve after a navigational error. The shipwreck ripped open the ship's holds, releasing part of the 2,600 tons of cereals the ship was carrying, and damaging the underwater flora, particularly the Posidonia meadows, which were literally burned up when the wheat fermented.

On the French side are the Bouches de Bonifacio Nature Reserve, created in 1999 in southern Corsica and sites like the Lavezzi Islands. The Nature Reserve is intended to protect the islets and the Posidonia marine meadows. The fauna there is very diversified: corals, molluscs, fish, reptiles, birds and bats. The surface area of the French part of the PMIBB is 79,460 hectares, of which 79,203 are marine. It also contains a land part, particularly the sites acquired by the Conservatoire du Littoral (see above). Strengthened protection zones will be introduced around the Lavezzi Islands (blue rock thrush, Marmora's warbler, crested shag, herring gull and even Cory's shearwater) and also in the Cerbicale Islands, the Bruzzi, the Moines and the ponds of Ventilègne, Pisciu Cane and Testarella.

On the Italian side, the Park includes the Maddalena archipelago, where a Nature Reserve has been created. The Italian perimeter, taking in the area between Capo Testa and Capo Ferro and including the Maddalena archipelago and the set of minor islands (Mortorio, Nibani and Bisce), will run along the French perimeter.

Each state will remain free to fix the modes of regulating and the modes of managing its structure. On the Italian side, the Maddalena archipelago has already been given National Park status.

As to regulations, a whole set of measures is provided for on the French side:

- an area of almost 12,000 hectares over which it is forbidden for planes to fly at under 300 metres, and where hunting and fishing are prohibited, as well as camping on the Lavezzi Islands and the Pyramid and Piana islets
- the landing and movement of people in these areas is strictly regulated
- diving without breathing apparatus is permitted in all the territory, including the strengthened protection zones and zones from which nothing must be removed
- underwater hunting is authorized in all the territory, except in the strengthened protection zones, the zones from which nothing must be removed and the fishing stations. But it may only be done with the exclusive use of the spear gun and without motorized gear (power-driven diving or surface gear). Also, it is forbidden to remove any grouper species or crustacean species. In the forbidden zones, no underwater fishing weapon may be brought in unless it has been unloaded and put in its holster or in a closed box
- aqualung diving (with canisters) is permitted in the Nature Reserve, including the strengthened protection zones. It is forbidden in the zones from which nothing must be removed and in the fishing stations. However, in the interests of the Reserve, and on the advice of the Advisory Committee, the maritime administrative officer may stop all diving control arrangements
- 1,600 hectares within this strengthened protection perimeter have been made into a zone from which nothing must be removed, and no kind of hunting or fishing is permitted there
- as for merchant traffic, the International Maritime Organization ordered on 1 January 1999 new arrangements for the Bouches de Bonifacio as regards navigation and monitoring rules. Merchant ships must henceforth make themselves known to the Corsican and Sardinian semaphore signallers when they enter the navigation channel, giving their identity and the nature of the goods carried. Later, still more draconian rules are to be introduced.

For all that, the PMIBB is not synonymous with the freezing of all activity. The aim is not to make the southern tip of Corsica a sanctuary. The natural wealth must be exploited, but without endangering these resources:

- sport fishing is permitted in certain areas if done with dragnet, palangrotte or rod and reel
- commercial fishing is permitted within the context of the regulations defined by the Bonifacio fishing management body
- sea traffic, berthing and mooring are permitted but could come under specific rules from the maritime administrative officer, acting on the advice of the Park's Advisory Committee
- facilities to welcome the public, both on land and at sea, by markers and coastal pathways will be introduced.

The PMIBB has thus a double interest: not just protecting the natural and cultural heritage wealth, but also, in its concern for conserving the sites, controlling the human activities linked to the environment, be they commercial fishing, tourism, sailing, diving or underwater fishing.

This is why the Park, though created in the context of Interreg. II, will back up operations being carried on as part of other community programmes such as the Life programme, launched as part of the Habitat Directive on protection for species of fauna and flora.

Town planning

Certain mistakes made in the early 1970s as regards town planning on the sandy littoral (building blocks of flats on the shore, building roads parallel to the shore at the back of dunes) have helped spark off phenomena of erosion of dune systems. Moreover, it has for some time been noticed that tourists are less interested in the old resorts which do not respect the environment, with the 'Sun, sea and sex' formula gradually giving way to a search for site quality, hinterland activities, etc. Local groups have for some time been looking into this question with the people in charge of tourism, the environment, town planning etc., to decide how to upgrade these older resorts. This has led local decision-makers to envisage the pure and simple destruction of some of these buildings, built on the shore, and the rerouting of some coastal access routes<sup>23</sup>

### Overview

Species	Site/habitat	Protected area	Source of impact, level of disturbance and trends	Action taken or envisaged
Land flora	Back of beach	Port-Cros National Park (for example)	Overcrowding, trampling	Restricting the flow of visitors
Land and sea flora and fauna	Degradation of habitats	All reserves	Overcrowding	
Dune flora	Dune systems		Overcrowding, trampling, road access	Putting in 'ganivelles', informing the public, destroying infrastructure responsible for major impacts
	Marine environments		Pollution by waste from sailboats	Strengthened regulations and checks
	All littoral environments		Urban development, building of infrastructure	Creating a law specifically for the littoral and a public body that acquires fragile or threatened land

Table 7: France – Overview of impacts

## 2.8. Greece

### Overall situation

With over 16,000 km. of coast, Greece has the longest shoreline of all Mediterranean countries. But, basically because of its very complex legislation, and of the number of institutions engaged in environment protection and conservation at national level, there is no real network of coastal and marine protected areas in the country. Eight coastal protected areas cover nearly 29,000 hectares but basically include terrestrial areas. The legislation on biodiversity and coastal areas is sufficient but its enforcement is confronted by various difficulties, which slow down implementation.

### Sources of impact

The main sources of impact listed in the National Report are:

- discharge of untreated waste water from hotels, although the law requires that this be treated
- mooring of sailing boats in Posidonia meadows

<sup>23</sup> Access roads lying at right angles to the coast are far preferable to roads running parallel to the coast.

- the building of marinas and ports immediately next to lagoons, and more generally the building of infrastructure
- overcrowding of beaches
- introduction of predators
- unsupervised whale-watching in the middle of cetacean shoals.

Various written documents also mention fishing with dynamite, still frequent near Sfakia (Crete) and on a smaller scale in Gavdos.

### **Impacts on habitats, species and protected areas**

There are two marine parks, the Alonnisos Marine Park in the Northern Sporades (dating from 1992) and the Zakynthos Marine Park (dating from 2000).

There are also several marine and coastal areas that are subjected to conservation measures (including 7 Ramsar sites):

- the Gulf of Amvrakikos (SPA) including very diversified environments: lagoons, stretches of fresh water, wetlands, salt marshes, shore/sylvan
- the delta of Aliamon, Axios, Loudias (SPA)
- the Evros delta (SPA)
- the Kotychi lagoons, cut off from the sea by a wide system of dunes and wetland meadows
- the Messolonghi lagoons (SPA)
- the Nestos delta and lagoons.

Many tourist impacts have been noticed in the (abundant) literature. They highlight the problems mentioned in the 'Overall situation' paragraph, i.e. the difficulty of enforcing existing law. Some examples, out of many, are mentioned below, particularly for the monk seal:

- the building of a hotel was authorized in the Ithaca Strait in the immediate proximity of caves frequented by the seals
- in Kefalonia Island, sailing boats entered the caves and caused a marked decline in the seal-watching 'contacts'
- in the Kimolos and Polyaiagos Islands, and in the Karpathos-Kasos-Kasonisia archipelago, the main threats are the continual degradation of habitats and the destruction of monk seals by fishermen
- on the south-western coasts of Milos Island, the decline in the seal population over recent years could be attributed to the increase in human pressure (very numerous visits during the summer), since the beauty of the sites makes them an area of great interest for tourism
- the Pefkias-Xylokastron Nature Reserve: a littoral relic pine forest with great botanical diversity, overcrowded in the summer with major risks of fire
- the Alonnisos Marine Park (Northern Sporades): it includes 8 islands and adjacent marine areas with two areas that are protected because of their ecological value, intended for the protection of the monk seal and other rare species of flora and fauna. The avifauna is extremely rich: Eleonora's falcon (3,000 pairs), Audouin's gull, Bonelli's eagle, Cory's shearwater, Desmarest's shag, plus a large number of birds of prey: European sparrow hawk, common buzzard, peregrine falcon, northern hobby, Eurasian kestrel, etc. The fauna of marine mammals (not including the monk seal) is equally so, with the common dolphin, the striped dolphin, the long-finned pilot whale, the sperm whale, the false killer whale and the killer whale. The marine fish fauna contains over a hundred species. The main threats come from the public's appetite for monk seal-watching, which gives rise to serious problems of disturbance
- the Vai Nature Reserve (Crete). This is a small reserve intended to protect a relic forest of Phoenix theophrastii. This is, with the fan palm, the only endemic European palm. The biggest natural

Phoenix theophrastii population is found on Vai beach, on the eastern coast of Crete. Some groups have also been discovered on the south-western coast of Turkey. In Vai, thousands of wild plants are protected by a dissuasive fence. The main threat comes from fires started by tourists, especially campers, and from vehicles being driven about, preventing plant regeneration

- the most important beach in the Mediterranean in terms of the number of loggerheads (c700-1,000 per year) is on Zakynthos Island, in Laganas Bay. There is also an important presence of small cetaceans like the common dolphin and the bottlenose dolphin. The most serious threats are the building of infrastructure directly on the coast, the beaches, the dunes and sometimes the cliffs. Pollution from waste water and solid waste is also a serious impact, as is fishing.

### **Action taken**

Many actions to protect habitats and fauna are under way, particularly as regards protecting monk seal habitats. Some only of these operations are mentioned below.

The Greek government has for a long time followed a policy of creating protected areas. Two Marine Parks have been created, Alonnisos and Zakynthos, as well as many coastal protected areas such as the Evros delta, the Gulf of Amvrakikos, the Kotychi lagoons, the Messolonghi lagoons, etc., most of them as SPAs<sup>24</sup>.

To attempt to limit the impacts of tourist pressure on monk seal populations through seal-watching, important awareness campaigns have been carried on in the Alonnisos Marine Park.

In some coastal protected areas, attempts to make best use of the seabed have been made (diving, etc.). The areas chosen are those where fishing has recently decreased markedly and where no protected or threatened species is present. These are protected areas intended to restore and revitalise marine areas that are already degraded and that can simultaneously support tourist activity. Such attempts have been made in Milos-Kimolos-Polyaigos-Thira-Thiresia and along the west coast of Attica.

Some tourist websites<sup>25</sup> give information on the possibility of visiting areas of biological interest, such as the loggerhead turtle beaches in Zakynthos Island, the Alonnisos Marine Park and the north-east coasts of Evia Island (monk seal), activities seen as ecotourism or 'ecological tourism'. The site presents a certain amount of information on protected areas, national parks, marine parks (particularly the zoning of this park), on the status of endangered species, on the institutions and NGOs entrusted with conservation (the Greek Monk Seal Protection Society-MOM, for example) and gives a bibliography (books like Birds of the Aegean or Important Bird Areas of Greece are even available on-line). Nevertheless, there is nothing on how tourists should behave as regards the threats hanging over the environments and the fauna as a result of the disturbance caused by tourism.

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<sup>24</sup> Special Protection Area EC Directive.

<sup>25</sup> Hellas-Guide : [http://www.hellas-guide.com/eco\\_tourism/index.html](http://www.hellas-guide.com/eco_tourism/index.html).



**Overview**

Species	Site/habitat	Protected area	Source of impact, level of disturbance and trends	Action taken or envisaged
	Fragmentation, degradation and loss of habitats Degradation of wetlands, eutrophication		Illegal building directly next to the lagoons Filling in of lagoons Problems of enforcing the rules Discharge of untreated waste water from hotels	
Coastal pine forest		Pefkias-Xylokastron Nature Reserve	Overcrowding, fires	
Disturbance of cetaceans			Unsupervised whale-watching tourism, sailing boats go into the middle of groups of cetaceans	
Decline of monk seal populations	Degradation of habitats	Milos, Kimolos, Polyaiagos, Alonnissos Marine Park	Development of unsupervised whale-watching activity	
Direct mortality of turtles			Sailing	
Pine forests, relic <i>Phoenix theophrastii</i> forest	Coastal forests	Pefkias-Xylokastron Nature Reserve, Vai Nature Reserve	Fires started by campers, compression of soil by vehicles	
Disturbance of turtles during egg-laying, destruction of nests	Erosion of beaches	Zakynthos Island	Urban development of sandy and rocky coastal areas, increase in tourist and leisure activity on the beaches (noise, light, human presence)	
Decline in sea bird populations	Degradation of habitats		Introduction of predators, increase in number of tourists No sustainable management plan	

Table 8: Table 8: Greece – Overview of impacts

**2.9 Israel****Sources of impact**

According to the information provided by the National Report, the main sources of impact are overcrowding, trampling and the driving of all-terrain vehicles on beaches because of illegal entry into protected areas. These impacts are high and are growing.

**Impacts on habitats, species and protected areas**

Outside the National Report (see above), little information has been found in books regarding tourist impacts on habitats and species.

The vermetid (*Lithophyllum lichenoides*) platform site in Shiqmona, near Haifa, is the most diversified littoral ecosystem on the coast of Israel. The site is relatively untouched and a Marine Nature Reserve (Ramsar site and Specially Protected Area-Barcelona Convention) has been created there. But it is also under building pressure because it is so near to the city of Haifa.

The Ma'agan Michael Islands. This is a 2-hectare coastal and marine Nature Reserve that is an important nesting station for the common tern and for some pairs of yellow-legged gull and rock dove. It is also an important feeding station for Charadriidae migrators. The proximity of a much-frequented beach is a cause of disturbance for nesting terns and the number of nesting birds has decreased markedly.

Rosh Hanikra National Park This contains a terrestrial part and a marine part, with islands (cliffs, caves, natural tunnels). The cavernicolous flora and fauna are remarkable. The beaches are used by marine turtles, both loggerhead and green. The islands have a few nesting birds, like the white wagtail, the yellow-legged gull and the common tern. The monk seal was inventoried here in the 1980s. The caves have many colonies of chiroptera. The National Park is an important tourist attraction, visited by over 250,000 people a year. The main threats are from collectors collecting molluscs and from turtle eggs being taken.

### **Action taken**

The main problem as regards conservation of nature and biodiversity on the Mediterranean coast is the fragmentation of habitats and protected sites. Special protection and/or management strategies have been put in place for the most sensitive ecosystems, such as coastal habitats. The Master Plan for National Parks, Nature Reserves and Landscape Reserves for the Mediterranean aims at protecting large parts of the littoral and marking out the sectors that are intended for developing tourist activity. Regulations have been introduced, such as the ban on any building within a 100-metre strip along the littoral.

### **Overview**

Species	Site/habitat	Protected area	Source of impact, level of disturbance and trends	Action taken or envisaged
Lithophyllum lichenoides	Vermetid platforms	Shiqmona – Ramsar site and SPA	Urban development	
Nesting sea birds		Ma'agan Michael Islands	Disturbance	
Molluscs and marine turtles		Rosh Hanikra National Park	Collection of molluscs and collection of turtle eggs	

Table 9: Israel – Overview of impacts

## **2.10 Italy**

### **Overall situation**

Seaside resort tourism is in Italy, as in many Mediterranean countries, extremely well developed and constantly growing. This development of coastal tourist activity brings about the degradation and disappearance of many ecosystems and habitats for marine and terrestrial protected flora and fauna.

With 8,000 km. of coast, Italy has the second biggest coastline in the Mediterranean basin. The protected areas are especially located along the coasts of the Tyrrhenian Sea. Italy has 15 coastal protected areas, two national parks (Circeo, Archipel Toscan), one regional nature park (Maremma), 10 nature reserves, including 7 marine ones (Ciclopi, Miramare, Tremiti, Ustica, Egadi Islands, Torres Guaceto, Capo Rizzuto) and 2 fishing reserves (Castellabate and Portoferraio).

Italy's National Report advances 4 main impacts of tourist activity on the littoral: the degradation of Posidonia meadows, the degradation of habitats, the disturbance of monk seals and marine turtles, and the reduction of populations of cartilaginous fish. The following information is taken from this National Report.

### **Sources of impact**

The main sources of impact inventoried in the National Report are:

- pollution and eutrophication, particularly that due to the discharge of waste water from seaside resorts and the accommodation or catering infrastructure, treated or imperfectly treated
- the development of infrastructure: urban development, the building of port infrastructure and marinas, engineering of beaches
- development of water sports: sailing, particularly in motor boats, mooring of boats, diving etc.

### **Impacts on habitats, species and protected areas**

The information below is taken from the National Report.

Human activity is responsible for a major decline in the Posidonia meadows in many sites. Among the 13 major causes of degradation of the inventoried meadows, at least three are directly linked to tourist activity, and are growing: pollution and eutrophication (particularly that due to the resorts), the development of infrastructure (building of port infrastructure that modifies the currents and sedimentation), the development of activities (destruction of the mattes by mooring of yachts, etc.).

As regards the monk seal, the increase in tourist activities on the littoral without a specific national management plan leads to the degradation and disappearance of habitats and a lowering of the rate of reproduction. The problem is seen as critical.

The identical situation holds good for the marine turtles, as beaches are transformed into leisure areas, nests are destroyed and direct mortality is caused by sailing. The problem is described as very serious and growing.

As regards cartilaginous fishes, fishing and direct mortality of certain sharks caused by sailing, because of their coastal habitat and their vulnerability stemming from their docility, bring the numbers down.

As regards protected areas, some information on the impacts of tourist activity has been taken from the writing on the subject:

- The Circeo National Park (Biosphere Reserve): This remains one of the protected areas that is most representative of the Mediterranean coastal environment due to the diversity of its ecosystems: relics of the ancient low-lying Pontine forest, brackish lagoons (Ramsar), 30 km. of dunes, Zannona Island. Because of this mosaic of environments, the vegetation there is extremely diversified and includes several protected species such as the fan palm, and a varied fauna: otter, badger, porcupine, fox, weasel, polecat, roe-deer; 230 species of bird, including: green woodpecker, great spotted woodpecker, peregrine falcon, black-winged stilt; the fish fauna is equally diversified: eel, flathead grey mullet, thick-lipped grey mullet, etc. Because it is so near Rome, the Park is subjected to intense human pressure which causes the vegetation to decline and gives rise to phenomena of erosion, particularly in the dunes, after a road was built along the entire length of the dune system. Speculation to build private homes is also an important problem. The lake is subjected to pollution and eutrophication because of the imperfect systems for treating waste water. There are insufficient means to ensure sufficient numbers of wardens

- The Burano Nature Reserve: A little lake cut off from the sea by a system of dunes. This is an important wintering stopover for migratory birds: great cormorant, Eurasian wigeon, common pochard, etc. Some land mammals are present on the tombolo, the otter being relatively rare in the lake. The lake is a major tourist attraction and solid waste pollution and summer fires are the main threats, as well as removal of sand from the dunes
- The Caprera Nature Reserve: A small rocky islet protected as a military area. Fauna is basically represented by the yellow-legged gull, the peregrine falcon, the great cormorant, and a reintroduction of the monk seal there is envisaged. Nevertheless, tourist pressure is very great, particularly sport fishing
- The Orbetello and Feniglia Reserve: This is a system of wetlands cut off from the sea by dune areas. The Reserve is an important stopover for migratory birds: great crested grebe, and various species of anatidae, charadriiformes and wader. The main problems linked to tourism are linked to the building of a marina on one of the tombolos (starting off erosion phenomena) and the enlarging of the port of Orbetello
- The Miramare Marine Reserve (Biosphere Reserve): A little reserve in the north of the Adriatic. The Reserve includes the most northerly population in the Mediterranean basin of the *Cornus mediterraneus* mollusc. Various species of over-exploited fish have been reintroduced in the Reserve: European seabass, common shrimp, spinous spider crab. Apart from the pollution linked to its being near the town of Trieste, the problems linked to tourism are those linked to water sports and amateur fishing
- The Cyclops Islands Marine Reserve: Sited in the eastern coast of Sicily, the Reserve protects a small part of the Sicilian coast and the Cyclops archipelago. Up to a depth of 300m, the marine flora is very rich (about 300 species), including *Posidonia* and *Cymodocea*. Some species are rare or unique in Sicily. The marine fauna and birds are also very rich, and the presence of the rare Sicilian lizard should be noted. Tourist pressure of every kind, including illegal (particularly amateur) fishing and the mooring of sailing boats, is the main threat to the site.

For Sardinia, some examples have been taken from the abundant writing on the subject and supplement the information in the National Report:

- Vermetid platforms are threatened by superficial pollution, especially from hydrocarbons (discharge from sailing boats) and the excessive tourist presence (trampling)
- The most important areas of distribution of *Posidonia* meadows are represented by the eastern slope of Asinara Island, within the Punta Barbarossa and the Punta Trabuccato, in the Fornelli Strait, in the southern part of Caprera Island and in the area lying between Tavolara, Capo Ceraso and Capo Coda Cavallo. The main causes of degradation are pollution and the mooring of sailing boats
- The beaches of Santa Maria on the La Maddalena archipelago and the most beautiful bays of Asinara Island, the Sant' Andrea bay and the bay of Cala Arena, where there are dunes with salt-loving populations and ponds lying behind the dunes, are subjected to degradation due to trampling, which leads, particularly, to the erosion of the back of the beach
- The waters of Foradada Island (whose name is taken from a big cave there) and Piana Island contain an important specific richness and remarkable species such as the red coral. In this area lies the Nereo cave, the biggest cave in the Mediterranean, over 300 metres long. Problems are due to the presence of diving tourism, where samples of certain species are directly removed, to an accumulation of air on the roofs of the caves, and to the movement of fine particles of the seabed, causing turbidity of the water, which harms the coral.

### **Action taken**

The National Report makes two points clear:

- The Ministry of the Environment has launched a specific plan for Posidonia that includes mapping the meadows and studying protection measures
- It suggests launching a priority action to develop low-impact ecological tourism whose aim would be to back up planning structures at local, regional and national level to develop littoral ecotourism, which would not harm the natural environment on which it is dependent. Falling under the responsibility of ICRAM (Central Institute for Marine Research Organisation), the budget for this operation would be 1.1€ million. This identifying of opportunities for tourist diversification would also aim at enhancing the economic and social cohesion of the people of the coast. The envisaged activities would include:
  - centres for interpreting the coastal and marine environment
  - rambling
  - water sports: whale-watching and dolphin-watching tourism, diving
  - bird-watching tourism.

**Overview**

Species	Site/habitat	Protected area	Source of impact, level of disturbance and trends	Action taken or envisaged
Posidonia	Meadows		<ul style="list-style-type: none"> <li>- Pollution and eutrophication by imperfectly treated or untreated waste water</li> <li>- Building of port infrastructure (changes in the hydrosedimentary balance)</li> <li>- Mooring of boats</li> </ul>	Specific plan for Posidonia meadows including mapping and studying protection measures
Posidonia, Cymodocea, marine fauna	Meadows  Dunes and back of beach	Cyclops Islands Marine Reserve	<p>Amateur fishing, mooring of boats</p> <p>Overcrowding, trampling</p>	
Red coral and other species of underwater cavernicolous environments	Underwater caves		Diving	
	Dunes, lake	Circeo National Park	Overcrowding, trampling, road building, speculation, discharge of imperfectly treated or untreated waste water, eutrophication, insufficient means	<p>Priority action for the development of low-impact ecological tourism:</p> <ul style="list-style-type: none"> <li>- centres for interpreting the marine and coastal environment</li> <li>- rambling</li> <li>- water sports: whale-watching and dolphin-watching tourism, diving bird-watching tourism</li> </ul>
	Dunes, aquatic environment	Burano Nature Reserve	Pollution by solid waste, overcrowding, fires, removal of sand	
Marine fauna		Caprera Nature Reserve	Sport fishing	
	Sandy environment	Orbetello and Feniglia Reserve	Urban development, infrastructure	
Removal of reintroduced marine fauna		Miramare Marine Reserve	Amateur fishing	

Table 10: Italy – Overview of impacts

## 2.11 Lebanon

### **Overall situation**

A network of protected areas (including coastal) is being created in Lebanon. In a multiple-emergency situation, the setting up of this network shows the determination of the national authorities. However, the impacts of tourist activity are generally high and increasing rapidly.

### **Sources of impact**

The main cause is the 'privatization' of the coast through the building of port infrastructure and permanent or temporary buildings (huts), unaccompanied by any urban development planning and without any infrastructure for managing and treating waste and waste water. Secondly, water sports, especially fishing and diving, are a major factor of pressure on animal communities.

The problem lies mainly in the lack of appropriate legislation and the difficulties caused by the lack of means to enforce the existing laws.

### **Impacts on species, habitats and protected areas**

The main impact is the destruction of coastal habitats by building and the use of beaches and marine habitats for resort activities, and of marine habitats. These impacts on habitats affect the plant and animal communities, particularly sea urchin colonies and the main predator fish, which are 'over-fished', particularly juveniles. Bacteriological pollution from untreated waste water is also a serious problem.

The Palm Islands Reserve (ex-Rabbit Island and a Ramsar site) was formerly an important breeding site for sea birds. 146 migratory birds have been seen, 32 of which are summer nesters and take up residence on the island to breed. The Reserve contains seven species of bird in danger of extinction on a world scale. Today, only one species seems to be sedentary there and to nest – the yellow-legged gull. The Palm Islands are a refuge for marine turtles, the loggerhead and the green turtle. The flora includes rare species that are uniquely found in this site, such as *Euphorbia pithyusa* and *Cressa cretica*. A team has the task of developing and managing the Reserve.

Tourism has a definite impact on habitats and fauna: camping, boating visits without any really effective control, hunting, the collection of eggs and baby nestlings, fishing with dynamite, without mentioning (though this is not solely linked to tourism) the production of solid waste, like the plastic bags that are extremely dangerous to marine turtles.

The Ras El Aïn site (Ramsar Tyre Coast Nature Reserve site) south of Tyre is the best conserved sandy area in Lebanon. The abundance of fresh water at the back of the beach creates a very rich habitat. So far, the analysis of the biodiversity there is very patchy but this really does seem to be a site that is favourable to the reproduction of the green turtle or the loggerhead, whose presence is confirmed by fishermen. The main threat linked to tourism is the uncontrolled installing of groups of huts and restaurants. Removal of sand is also very frequent, but the development of tourist activity is there perhaps less a matter of concern than the problem of the arrival of displaced persons (a Palestinian refugee camp).

**Overview**

Species	Site/habitat	Protected area	Source of impact, level of disturbance and trends	Action taken or envisaged
	Degradation, being split up		Privatization of the littoral, building of huts, uncontrolled urban development, no treatment of waste water, gaps in the regulations, lack of means for implementing legislation	
Avifauna, marine turtles		Palm Island Reserve	Camping, boating visits, collection of eggs, hunting, solid waste	
Marine turtles		Tyre Reserve (Ras El Ain)	Huts, removal of sand, discharge of untreated waste water	

Table 11: Lebanon – Overview of impacts

**2.12 Libya****Overall situation**

Libya has only 2 protected areas on 1,800 km. of coast, one of them being the Wadi El Kouf National Park, created in 1978, which covers 2 km. of the coastline and only contains terrestrial ecosystems. Field studies have been done to identify a network of Marine and Coastal Protected Areas. Much of the littoral is not built up and valorized and constitutes choice areas for marine turtles to breed. Also, Libya has the second largest area of underwater meadows in the Mediterranean, after Tunisia. The creation of new protected areas requires a revision of the existing legislation, the strengthening of national institutions responsible for environmental issues, and the training of staff.

Libya has so far no modern infrastructure for tourism and the government is actively seeking to encourage investors. Mass tourism is not on the cards because of the social and environmental problems it could cause, and the authorities are counting on some soft seaside tourism and diving for the coastal areas. Nevertheless, contracts are already being signed with foreign investors for building tourist complexes: 300 beds in Msurata, 600 beds (could be extended to 1,000) in Silin Beach Resorts, near Tripoli (one of the 6 Greenfield sites listed by the British Trade Organisation, like the Wadi El Kouf and Surman coastal parks), with the laying out of an 18-hole golf course (which will require a lot of water for irrigation). Several other feasibility studies are being done<sup>26</sup>.

**Sources of impact**

Today, the main sources of impact on habitats and marine and coastal biodiversity are basically industrial and urban.

<sup>26</sup> Trade Partners UK – Tourism Industry in Libya :

<http://www.tradepartners.gov.uk/recreation/libya/opportunities/opportunities.shtml>.



## Overview

Species	Site/habitat	Protected area	Source of impact, level of disturbance and trends	Action taken or envisaged
	Marine and terrestrial parts of the littoral	Little or unknown impacts of tourism		Creation of coastal and marine protected areas, revision of the legislation on protected areas, strengthening of institutions, training of staff

Table 12: Libya – Overview of impacts

## 2.13 Malta

### Overall situation

The coastal and marine areas of the Maltese archipelago are under great pressure because of population growth and the development of the industrial and transport infrastructure. These trends are amplified by the development of tourist activity (and other activities linked to the marine environment). Today, tourism represents 24% of the country's exports of goods and services. Nearly 40,000 people are indirectly concerned by tourist activities. Obviously, tourism is a major economic activity for the country.

### Sources of impact

There is a rapid increase in the building of accommodation structures. The hotels are built directly on the rocky areas of the coast, including unstable areas (certain buildings are then abandoned). Saint Paul's Bay has thus been completely transformed. As a corollary to this rapid development of tourism, the production of solid waste has mushroomed (certain beaches – Ghajn Tuffieha Bay<sup>27</sup> – are highly polluted) and the same holds good for the discharge of untreated waste water, which means that toxic products are being stored in marine organisms. The increase in sailing is also a source of pollution: discharge of fuel, of waste water, and anti-fouling paint<sup>28</sup>. The noise caused by the high density of tourists in certain sites disturbs many species of sea bird.

### Impacts on species, habitats and protected areas

Many sandy beaches adjoin dune systems, but today a limited number of these dunes remain and these have been badly degraded, mainly because of leisure and tourist activities (removal of sand, building, trampling). Dune ecosystems are thus among the rarest and most threatened of Malta's ecosystems.

Thus, the southern marram grass, a subspecies of *Ammophila*, has now completely disappeared<sup>29</sup>. Floral communities show a proliferation of *Brometalia* and *Malcolmietalia* species that are typical of disturbed dune vegetation. Also, on the Ramla l-Hamra (Gozo Island) dunes, non-native species such as *Arundo donas* (giant reed), *Oxalis pes-caprae* (wood sorrel), *Vitis vinifera* (common vine) have invaded formations of the *Elytrigetum* and *Ononidetum* type and are the main threat to the last complete community of dune vegetation in the Maltese archipelago<sup>30</sup>.

The underwater meadows in the semi-closed bays have been greatly degraded by pollution or dredging or pumping activities linked to the development of the tourist infrastructure. This could be worrying for the unique endemic marine species in the Maltese archipelago, a gasteropod, *Gibbula nivosa* (*Gibbula ta' Malta*), living in the shallow waters of the *Posidonia* meadows, a shellfish which is moreover much sought-after by collectors for its rarity.

<sup>27</sup> Gardiner V. ? -

<sup>28</sup> Bribuglio, L., Butler, R., Harrison, D. & Filho, W.L. (1996).

<sup>29</sup> Schembri P. - ?

<sup>30</sup> Stevens D. T. (2001).

Brackish wetlands are extremely rare in the Maltese archipelago. Many have disappeared as a consequence of human activity, and five survive, though constantly under threat. This is the case for the Ghadira s-Safra marsh in the north-eastern coast of Malta, in the Maghtab-Ghallis region, a freshwater marsh which becomes brackish and then dries up in the summer. A Nature Reserve (UICN cat. IV) a Cystoseira site, it contains two crustaceans rare in Malta, the cancriform *Triops cancriformis*, a *Chirocephalus* spp., the only Maltese site for the second, and is the only station in the archipelago for a grass (*Crypsis aculeata*) and a bryophyte (*Riella helicophylla*) listed in Annex I of the Bern Convention. A brackish water fish, the Corsican toothcarp, an endangered species in the rest of the archipelago, is present in the marsh. Some mammals and reptiles live there. It is an important site for migratory birds, particularly the waders such as the ruff and many passerines. The site is easily accessible and is a very popular tourist area. The bay (Mellieha Bay) a few hundred metres away is a major, greatly urbanized, seaside resort and the beach adjoining the site has been developed. The main impacts are the compression of sediment by vehicles and the fires that encourage the proliferation of rapidly-growing species at the expense of slow-growth marsh species<sup>31</sup> and the disturbance of the birds by the heavy road traffic on a road that runs along the eastern part of the marsh.

The Rdum Tal-Madonna site, a protected area currently being formed, is a peninsula made up of cliffs, 25 metres high and 200 metres long. It has a big colony of Balearic shearwaters and is an important nesting site for the short-toed lark, a few pairs of blue rock thrush and the spectacled warbler. The hunting and taking of birds, especially by foreign hunters, recently, is frequent on the tops of the cliffs.

The Ta'Cenc cliffs in Gozo are also an important site for migratory birds. As well as the nesting species mentioned above, it has the biggest colony of Cory's shearwater in Malta. The peregrine falcon disappeared from here in the late 1980s. Hunting is also one of the main threats to the fauna here.

A 5-star hotel has been built near the site. This building does not seem to have caused any damage to the site and its fauna, although the hotel brochure offers jogging along the cliff paths. A striking fact is that this brochure (website) calls attention to the site's ecological importance, which thus represents one of the hotel's main attractions<sup>32</sup>. In the late 1980s, other tourist development was envisaged there.

The seabed at the bottom of the cliffs is famous, and certain underwater diving websites speak highly of its quality, although diving is forbidden there, suggesting access via the hotel's private beach.

Filfla Islet is a Nature Reserve (UICN cat. IV) and a bird sanctuary. The Reserve has four endemic terrestrial species, a lizard, *Podarcis filfolensis filfolensis*, two gasteropods, *Hellicella pyramidata despotti* and *Lampedusa gattoi*, and a nocturnal scarab *Subterranea melitana*. As regards avifauna, the Reserve also contains one of the biggest known Mediterranean colonies of the British storm petrel, and is an important nesting site for the Cory's shearwater, the yellow-legged gull and, perhaps, the Balearic shearwater. There too underwater hunting, done at sea from boats, is the main threat to the site. But it is carried on by native rather than foreign fishermen.

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<sup>31</sup> Lanfranco S. & Schembri P.J. (1995).

<sup>32</sup> The Ta'Cenc property contains one of the most extensive underdeveloped and relatively unspoiled area in the Maltese islands. Its ecological importance has been unequivocally established in Technical Studies, where Dr. Schembri lists 25 rare, endangered and ecologically important species in his report. He invokes the image of a mosaic to describe the the rich diversity and interconnection of the plant communities at Ta' Cenc. The idea of the mosaic also captures an important aspect of the sense of the place in that the site is much more a surface than an enclosure. Virtually nothing grows higher than a meter off the ground and the experience of the ground as a sort of ecological tapestry becomes very clear as one walks over the site. The general impression is one of the tenuousness and tenacity of the ground cover: plants grow in the cracks in the rock and on the cliff faces, flower cluster at the edges of the rock pools.

Slight changes in the environmental conditions have obvious consequences in respect of the predominant plant species. Crossing the ridge at il Qortin il-Kbir, the change in the Garigue is extremely clear, as is the fact that the forces at work in contrast with the greater parts of the Maltese islands, are entirely natural. This delicate balance in the ecosystem, its complexity, its relatively unspoiled quality and the presence of both rare and typical plant species give the place its sense of ecological rarity. ([http://www.vjborg.com/tacenc/tacencarea\\_ecological.shtml](http://www.vjborg.com/tacenc/tacencarea_ecological.shtml)).

### Action taken

The 'Malta' MAP CAMP project<sup>33</sup> carried out various studies and research, inter alia, on the set of themes 'Marine Protected Areas' and 'Coastal Sustainable Management'. The pursuit of this project along the lines of these themes will take the shape of an action plan to be implemented over the next 10 years in order to ensure the sustainable development of the coastal and marine areas via an integrated approach. This action plan, which intends to improve the quality of the environment on the north-western coast of the island, essentially aims at improving the services offered to tourists (particularly obtaining the Blue Flag for at least one bathing area), but certain actions fall directly within the conservation of marine and coastal biodiversity. The action plan will basically concern the management of waste and waste water, monitoring of bathing water, protection of nature and awareness, and the monitoring of the marine and coastal resources of several sites, such as Gnejna Bay. It will, among other things, include the following activities:

- the fight against coastal pollution
- creating two Marine Protected Areas (26 marine areas have been recommended for Marine Protected Area status, and 16 coastal areas recommended as Nature Reserves. Today, there are 5 Bird Sanctuaries (UICN cat. III to V), one Nature Reserve and one Integrated Reserve (UICN cat. Ia)<sup>34</sup>
- elaborating management plans for certain protected areas (Rdum Majjesa-Ras Raheb)
- setting up an administrative and regulatory framework for marine protected areas
- developing human skills for implementing a monitoring of the marine environment.

Several agencies and ministerial services are involved in this project, coordinated by the Maltese Environment and Planning Agency (MEPA).

### Overview

Species	Site/habitat	Protected area	Source of impact, level of disturbance and trends	Action taken or envisaged
Disappearance of southern marram grass	Degradation and disappearance of the dune systems		Removal of sand, building, trampling	'Malta' MAP CAMP project in one part of the island, including: <ul style="list-style-type: none"> <li>- the fight against pollution</li> <li>- the creation of protected areas</li> <li>- management plans for protected areas</li> <li>- administrative and regulatory framework for marine protected areas</li> <li>- development of skills</li> </ul>
	Underwater meadows in the semi-closed bays		Pollution, dredging, pumping	
	Marshy areas with brackish water	Ghadira s-Safra	Filling in, compression of sediment by vehicles, trampling of shore	
Many species of sea bird		Fifla Ta'Cenc cliffs Rdum Tal-Madonna	Hunting	

Table 13: Malta – Overview of impacts

<sup>33</sup> UNEP- MAP (2001).

<sup>34</sup> UNEP-WCMC. Protected Areas Programme.

## 2.14 Monaco

### **Overall situation**

The littoral of the Principality of Monaco is completely urbanized and no terrestrial coastal protected area exists.

### **Impacts on habitats, species and protected areas**

There are two reserves. The Red Coral Nature Reserve covers 1 hectare. The Larvotto Marine Reserve is a Specially Protected Area intended to protect marine phanerogam meadows. It extends over 50 hectares. All fishing activity is forbidden, and anything that could harm the fauna, the flora and the seabed is also prohibited there, as well as the movement of ships or motor boats and anchoring or mooring with grapnels. The main threat is pollution (the Reserve lies alongside the urban area) and the invasion of the green sea palm *Caulerpa* (not due to tourism).

### **Overview**

Species	Site/habitat	Protected area	Source of impact, level of disturbance and trends	Action taken or envisaged
	Underwater meadows	Lavrotto Reserve	Pollution	

Table 14: Monaco – Overview of impacts

## 2.15 Morocco

### **Overall situation**

The development of tourism on Morocco's Mediterranean coast is spectacular and will be even more so after the Mediterranean bypass linking Tangier to Saida is built; this aims at freeing up an area which possesses major resources of tourist and fishing interest.

### **Sources of impact**

The sources and levels of impacts differ, depending on whether you are in the western part (near Tangier) or the eastern part of the Mediterranean coast. In the west, the development of tourism has been going on for some while and is expressed in heavy urban development of the littoral at the expense of dune ridges and lagoons. This urban development is accompanied by the discharge of untreated waste water, an increase in solid waste, and the drying up of certain littoral wetlands because of the removal of the fresh water that is needed to supply the tourist complexes. The environments have been greatly modified and the fauna disturbed; only a few remarkable species are left.

In the east, tourism is still in an embryonic state (except for a few sectors); here the tourism is rather unorganised, seen in unauthorized camping, pretty temporary groups of huts being put up, and all-terrain vehicles being driven about. In this eastern part, the terrestrial fauna and flora are still relatively well protected.

### **Impacts on species, habitats and protected areas**

The Al Hoceima National Park is the biggest Moroccan protected area on the Mediterranean littoral. It contains a terrestrial part and a marine part. It has a vast mosaic of habitats, including rocky coasts with underwater caves, sandy coasts, etc. The marine fauna there is extremely rich, with

in particular the monk seal, various species of dolphin and marine turtles. Over one hundred species of fish are present, with the grouper group, including the rare dusky grouper. Lastly, a big red coral colony should be noticed. The site is extremely important for migratory, nesting and resident birds. Among the most remarkable nesting species is the Audouin's gull, particularly in the Bokoyas Islands that lie within the Park, the yellow-legged gull and the osprey. Cory's shearwater could nest in Al Hoceima.

The threats to the Park are numerous, including urban development, tourist development, and the production of rubbish and untreated waste water. A project for a purifying plant is under consideration. Removal of sand from the beaches for building, disturbance of the avifauna by tourists, underwater hunting, the disturbance of monk seals, and the collecting of red coral are also various impacts linked to tourist activity.

The Restinga-Smi marshes, a unique example of wetlands on the Mediterranean side of the western Rif, lie 30 km. south of the Strait of Gibraltar. The complex is made up of a lagoon cut off from the sea by a dune ridge and beaches. The site is important for migratory and wintering birds. One of the most remarkable species is the Audouin's gull.

This area, near Tangier, is subjected to very great tourist pressure. Some 10,000 residents live there permanently, whereas the population goes up to almost 100,000 in the summer. Many holiday villages have been built, particularly on the dunes, and a marina was built at the outlet to the lagoon. Urban development is encroaching on the lagoon by filling in, the expansion being limited by the mountainous areas to the west. The increased water requirements have been met by the construction of a dam on the Wadi Smir, which has caused a decrease in the supply of fresh water, drying up one part of the marsh and increasing the salinity of the water and reducing the supply of sediment (terrigenous nutrients). The modification of the flow via the lagoon outlet, and the deficit in sedimentary supply have given rise to a change in the size of the grains of sand and in the slope of the beach. The increase in the summer population has caused a big increase in the discharge of waste water into the lagoon and into the sea, even if attempts to filter it have been made in the marsh area<sup>35</sup>.

The Cap des Trois Fourches, a rocky promontory containing several marine caves, is a SIBE<sup>36</sup>, presenting nearly 20% of the threatened taxa of the Mediterranean coast of Morocco: seven species of plant (4 of them endemic in Morocco); a mammal, the monk seal<sup>37</sup>; four species of bird, the Audouin's gull, the lesser kestrel, the red kite, the Desmarest's shag; one reptile, the chameleon. The sea part of the site has a remarkable marine flora and a cetacean presence.

The main threats linked to tourist activity for the site are ever greater overcrowding, uncontrolled since the site has no status, particularly through unauthorized camping-style tourism, the putting up of huts, and the attendant pollution (waste water, solid waste).

The Nador lagoon (Sebka Bou Areg) is one of the biggest lagoons in the Mediterranean littoral and is cut off from the sea by a thin offshore bar. The ensemble contains over 20% of threatened Mediterranean coastal taxa: 6 plant species, 5 of them endemic in Morocco; 5 bird species, the Audouin's gull, the lesser kestrel, the red kite, the slender-billed curlew, the marbled teal, 4 of these threatened; 4 reptiles, the Testudo graeca turtle, the chameleon, the Chalcides parallelus, the Chalcides mauritanicus. The presence of the monk seal is uncertain. As regards molluscs, the spectacular noble pen shell, formerly present throughout the Mediterranean and in the Nador lagoon, is now very rare there. Posidonia meadows, which formerly seemed to exist in the lagoon, are no longer present, which might be one reason for the disappearance of the mollusc. The other reason could be that it is collected by divers, who then sell it to collectors and tourists as souvenirs.

Because of the absence of any legal protection, the site is under multiple attack. Uncontrolled tourist activity occurs basically on the coastal strip and is shown in compression of the soil, trampling

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<sup>35</sup> MECO PROJECT: Bases for the Integrated Sustainable Management of Mediterranean Sensitive Coastal Ecosystem - European Commission, Directorate General XII - Contract No: ERB IC18-CT98-0270.

<sup>36</sup> Site of Biological and Ecological Interest.

<sup>37</sup> Some individuals (3 to 5) are sometimes sighted there.

and the passage of all-terrain vehicles, unauthorized camping, putting up of huts, and pollution by waste water and solid waste.

The Jbel Gourougou is a mountainous volcanic massif, 900 metres high, lying in the immediate neighbourhood of the Nador lagoon. This islet of vegetation offers a host of very diversified habitats and its interactions with the Nador lagoon are important, particularly via the contribution of sediment (erosion) and the supplying of the lagoon with fresh water. The remarkable animal species present are the Barbary ape, the lesser kestrel, the red kite, and the chameleon.

Because of the absence of any legal protection, this area is now under extremely heavy tourist pressure (the region's one green site) with the classic attendant degradation: degradation from all-terrain vehicles, solid waste, forest fires.

The Moulouya estuary presents a mosaic of habitats (river-sylvan, alluvial plain, marshy area, dunal ridge) of great ecological quality, unequalled on Morocco's Mediterranean littoral. Among the mammals is the European otter, and it seems that the monk seal frequents the site. This is an important nesting and sojourn area for many remarkable bird species. At least ten threatened coastal Mediterranean species are present there, including – as well as the species mentioned above – the small buttonquail, the purple swamphen, the little bustard, and the ferruginous pochard. As regards reptiles, the same species are present as have been described above: the *Testudo graeca*, the chameleon, the *Chalcides parallelus* and the *Chalcides mauritanicus*.

Every kind of pressure (agriculture, pollution, aquaculture, road infrastructure, urban sprawl) threaten the sites, the growing tourist frequentation not being the least of these: all-terrain vehicles on dune ridges, hunting, disturbance of the avifauna, water scooters in the marshy area, etc., particularly during the summer period.

**Overview**

Species	Site/habitat	Protected area	Source of impact, level of disturbance and trends	Action taken or envisaged
	Disappearance of dunes and sandy environments at the back of the dunes	Restinga-Smi marsh	Large scale urban development	
	Degradation of dune environments	Cap des Trois Fourches Nador lagoon Moulouya estuary	Removal of sand for building, putting up huts, unauthorized camping, driving trucks, no legal protection	
	Degradation of lagoon environments	Restinga-Smi marsh, Nador lagoon	Filling in, discharge of untreated waste water, removal of water upstream to supply resorts	
Noble pen shell		Nador lagoon	Degradation of habitat, collection by divers	
	Various kinds of degradation and forest fires in the protected massifs behind the littoral	Jbel Gourou	Overcrowding, no legal protection or means of protection	
Disturbance of monk seal		Al Hoceima Park	Overcrowding, no legal protection or means of protection	
Disturbance of avifauna		All protected areas	Overcrowding, hunting, collecting eggs, no legal protection or means of protection	

Table 15: Morocco – Overview of impacts

**2.16. Slovenia****Overall situation**

The Slovene coast represents a tiny part of the Adriatic Sea littoral (Gulf of Trieste) but 27% of the country's tourist accommodation capacity. The town of Piran receives some 400,000 visitors annually and tourism there is fast expanding in spite of inadequate infrastructure, especially road network. Tourist development tends to be done at the expense of sensitive coastal areas.

Today, about 8% of the Slovene territory enjoys protection measures. There are 8 protected – but not really managed – marine and coastal areas:

☞ coastal wetlands: Secovlje Salt Marshes (Nature Park), Fiesa Lakes (national monument), Sčokjan (Nature Reserve), Sv. Nikolaj (national monument)

☞ mixed areas, coastal and terrestrial: Strunjan (Nature Park and MPA)

Marine areas: Cape Madona (national monument, Posidonia meadows (national monument), Debeli rtič (national monument and MPA).

### **Sources of impact**

Given the smallness of the Slovene coastline and the extent of tourist development, the main threats are urban development, pollution, development of motor sailing and overcrowding.

### **Impacts on habitats, species and protected areas**

The principal impacts are directly related to urban development and population densification of the coast, which lead to strong fragmentation of terrestrial habitats. As regards the marine part, the degradation of the supra- and medio-littoral levels constitutes the chief impact in view of water eutrophication, the mooring of boats, the artificial enlargement of beaches, the construction of sailing harbours, etc. The impacts on the fauna are not negligible: disturbance due to overcrowding, noise of boat engines, direct mortality by boats.

Strunjan, Cape Madona and Debeli rtič. These protected areas comprise a terrestrial part characterized by big flysch cliffs covered with scrub vegetation, and of a marine part sheltering Cymodecea and dwarf eel grass meadows. The interest of these protected areas is the presence of the noble pen shell, the spirographis spallanzanii, the date-shell, the spinous spider crab, and a madrepora, the cladocora caespitose. The main threats hanging over these environments (apart from pollution due to the presence of the port and industries of Trieste) are fishing, heavy traffic of motorized boats, mooring of boats and the harvesting of molluscs and other protected marine species.

### **Overview**

Species	Site/habitat	Protected area	Source of impact, level of disturbance and trends	Action taken or envisaged
Cymodecea, noble pen shell, date-shell, cladocora	Underwater meadows	Strunjan, Cape Madona and Debeli rtič	Mooring of boats, harvesting of molluscs and crustaceans	
Marine fauna			Sailing	
	Fragmentation of coastal habitats		Urban development	CAMP Slovenia
	Degradation of supra- and medio-littoral levels		Water eutrophication, mooring of boats, artificial enlargement of beaches, construction of boating harbours	

Table 16: Slovenia - Overview of impacts



## 2.17 Spain

### **Overall situation**

Since 1982, Spain has created at national or regional level 25 protected areas on the Mediterranean littoral, 6 of them with a marine part. Up to the late 1980s, coastal tourism did not see itself as really concerned by environmental problems. After tourist activity dropped in the 1990s, Spain adopted the aim of creating a coastal protected area every 30 km., to ensure proper maintenance of terrestrial and marine ecosystems, flora and fauna.

Spain's Mediterranean coast has 6 Marine Protected Areas (MPAs)

the Cabo de Gata Nature Park and Marine Reserve (26,000 hectares, 13,000 of this terrestrial)  
the Cabrera Archipelago National Park (Balearic Islands) (10,000 hectares, 1,836 of this terrestrial)  
the Columbretes Nature Park and Marine Reserve (5,766 hectares, 43 of this terrestrial)  
the Medas Islands Marine Reserve (40 hectares, 20 of this terrestrial)  
the S'Arenal Protected Regional Landscape (400 hectares)  
the Tabarca Marine Reserve (1,463 hectares).

Also, the island of Minorca (Balearic Islands) was declared a Biosphere Reserve with protection from the adjacent marine area to the central protected heart.

Partly because of the great diversity of Spain's (and the Balearic Islands') Mediterranean coastal environments, though this is vastly reduced today, and partly because of the growing development of resort tourism on Spain's Mediterranean littoral, it was not possible to go into the issue in as great detail as was done for other countries. Thus, we give below a summary of the situation of tourist impacts on Spain's Mediterranean coasts, as they appear in the National Report provided, plus a few elements taken from books.

Spain's Mediterranean coasts present a major extension of rocky coasts and contains 104 hectares of coastal wetlands which have been so greatly spoiled and degraded that today only 40% of the original wetlands remain, including 11 Ramsar sites.

A feature of coastal tourism, as in all the other Mediterranean countries, is the overcrowding over a short period (50% of tourists in the 4 summer months from June to September). Urban development on a grand scale not only to develop the tourist industry, has 'sterilized' very large parts of the littoral (continuous urban areas that stretch over dozens of kilometres) and destroyed many precious habitats. Some 7 million residents, i.e. 15% of Spain's population, live within a strip that is 5 km. wide along the Mediterranean coastline. However, although it is the sandy coasts and wetlands that have been most affected (engineering of beaches, building marinas – almost 300 – building jetties and ports, theme parks, rubbish dumps, etc.), the rocky and cliff coasts have been much less urbanized, due to traffic difficulties and technical building problems. As well as the building of accommodation structures, the necessary infrastructure to develop this leisure-linked town planning (water supply, waste water collection, access roads, high-voltage lines, etc.) has greatly transformed many ecosystems.

Pollution from these big resort towns is also a major problem, as is supplying them with fresh water<sup>38</sup>. Growing fresh water requirements due to mass urban development worsen the chronic deficit

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<sup>38</sup> WWF/Adena study, mentioned in the National Report. Average water consumption for the population of Spain is 250 l/day/person, whereas a tourist uses up 440 l/day, and this consumption increases to 880 l/day where there are swimming pools and golf courses.

of the hillside ponds and give rise to an over-exploiting of the coastal aquiferous sheets of water, a rise in the relative level of contamination of underground water, and increased salinity of agricultural land as salt water seeps into the aquifers. And the situation is even worse in the summer months, when the water requirements of the resorts and of agriculture escalate.

But for a few years now some tourists have been looking for something other than beach, sun and sea, and their new expectations exert a strong pressure for improving the quality of the coastal environment. Protected areas particularly constitute new centres of interest, and the National Report gives an example of the rise (56%) and spread (from 3 months previously to 5 months now) of frequentation of the Estartit resort since the Medas Islands were declared protected areas, whereas the Escala resort (without a nearby protected area) has experienced a 5% drop in frequentation over the same period.

The first regulating of leisure activity, in the Medas Islands sector, goes back to 1983, with the creation of a zone where fishing was prohibited around the Islands. In 1990, the Catalanian Parliament passed a Law that protected the flora and fauna of the Islands' seabed. This Law created a strictly protected area around the archipelago and a peripheral area also including the Montgri coast. The development of the little town of Estartit, after the Medas Islands were closed to fishing, is particularly enlightening. Protecting the Islands has allowed tourist activity based on discovering the underwater environment to be developed. Every year, over 200,000 dives are organised around the Islands, while almost 100,000 non-diving holidaymakers can watch the marine environment from 14 glass-bottomed boats. Income from the diving and these visits alone was assessed at over 5 million euros in 1992, to which should be added income from the tourist infrastructure (holiday centres, hotels, camp-sites) which is practically full up with a tourist season now spread over five to six months (April to September), and the knock-on effect for the building trade, catering and businesses<sup>39</sup>.

But this rise in frequentation near the protected areas, if uncontrolled, particularly as regards water sports, treatment of solid waste, waste water etc., can have a serious impact on the protected areas themselves.



Cetacean-watching has become an increasingly popular ecotourist activity.

©José Luis Perea. CENEAM-O.A.Parques Nacionales

For several years now, cetacean-watching and whale-watching has become an increasingly popular ecotourist activity<sup>40</sup>, particularly off the Balearic Islands. The National Report indicates that strict rules must be enforced at national level (as was done in the Canary Isles in the Atlantic) because of the increase in the various agencies and bodies which offer whale-watching trips at sea, given the damage this can cause the cetacean populations.

<sup>39</sup> RIBERA SIGUAN M.A., (1992).

<sup>40</sup> As to whether whale-watching is an ecotourist activity, see § 4.6.1.

An item of information taken from the literature on the subject appears below, describing an extremely telling example of an indirect impact of tourism on a protected area<sup>41</sup>. The Cabo de Gata Nature Park and Marine Reserve has a terrestrial, semi-desert part which is completely exceptional in Europe, and a coastal and marine area where over 2,000 greater flamingos, Audouin's gulls, slender-billed gulls and stone curlews dwell. It is not so much the direct tourist pressure on the protected area that is the threat. The major threat is due to the rapid rise in agricultural activity, particularly irrigated crops, around the periphery of the Park, caused by the very great rise in tourist frequentation that is driven by the Park itself. This developing agriculture (market gardening, horticulture) requires a great deal of water (plus what is needed for the golf courses) drawn from the hillside ponds (insufficient) and the aquiferous sheets of water, particularly littoral, and is the root cause of the land drying out and becoming salty. Moreover, the use of agricultural intrants, including fertilizer, is a serious threat to the neighbouring marine ecosystems. [Overview](#)

Species	Site/habitat	Protected area	Source of impact, level of disturbance and trends	Action taken or envisaged
	Salinization of water, salinization of soil		Increase in tourist frequentation, excessive use of water resources	
	Loss, break-up and degradation of habitats Modification of coastal dynamics, erosion Degradation of marine biocenoses Degradation, disappearance of wetlands Destruction of benthic communities  Degradation of benthic communities Salinization of soil, pollution and eutrophication of water	Cabo de Gata	Urban development, infrastructure, mass tourism Port infrastructure out at sea, faulty knowledge of littoral dynamics Port infrastructure out at sea, faulty knowledge of littoral dynamics, pollution Infrastructure, pollution from untreated waste water, solid waste Enriching of beaches, faulty knowledge of ecosystem dynamics Water sports, noise, pollution Development of irrigated agriculture (and irrigation of golf courses) to satisfy tourist requirements on the periphery of the protected area	Suggested actions: - programmes for planning and integrated management of coastal areas (terrestrial and marine parts) - promoting pilot coastal area management programmes (CAMP) - guaranteeing strict enforcement of the law - revising and implementing tools to regulate tourist activity: Programme for a Sustainable Tourism (1998 Tour Operator Initiative (PNUMA, UNESCO, OMT), European Charter for a Sustainable Tourism in the Protected Areas, etc. - strengthening and implementing rules on tourist activities directly impacting protected species and habitats (cetacean-watching, diving, water sports) - information and environmental education campaigns - setting up Centres for Interpreting the Marine Environment

Table 17: Spain – Overview of impacts

<sup>41</sup> Desertification Risk Assessment in Silvopastoral Mediterranean Ecosystems - (Project IC18-CT98-039) – CSIC (Consejo Superior de Investigaciones Científicas) – Madrid.

## 2.18 Syria

### **Overall situation**

Syria has not sent in a National Report. There are no protected coastal or marine areas in Syria. A project for the creation of a national park is under consideration in Om'Attouyour near Latakia. Tourism is very poorly developed on the coast and is limited to archaeological sites. Pressure on habitats and on coastal and marine flora and fauna is essentially due to strong population growth, urban development, pollution by untreated waste water and industrial waste disposal.

### **Overview**

In the absence of information, it has not been possible to make a summary for this country.

## 2.19 Tunisia

### **Overall situation**

Tourism in Tunisia has long been developed, is experiencing spectacular growth and is essentially located on the coast (95% of tourist activity), principally the eastern coast between Nabeul and Sfax (over 50%).

According to the MedWestCoast programme, 35% of species (all taxa included) on the coasts of Tunisia are threatened.

### **Sources of impact**

According to the information provided in the National Report, the main sources of impact are coastal urban development with its corollaries (concreting, anthropization of natural beaches, overcrowding, permanent illumination, nocturnal activity and trampling of beaches and dunes).

### **Impacts on habitats, species and protected areas**

The National Report mentions no habitat, site or species in particular. The information given below has been taken from the available literature. It only includes, and is not exhaustive, the habitats/sites/species described therein, which show tourist activity impacts.

The Zouarâa-Nefza site provides one of the finest examples of old dunes and coastal forests hemmed in by mountainous relief. It thus contains a very interesting mosaic of habitats and is an important site for migratory birds to pass through.

In addition to the problems linked to the construction of the Wadi Zouarâa dam (for agriculture) and its consequences in terms of sedimentary deficit and risks of erosion of the beach, the site is subjected to strong pressure from tourist activity, particularly with the building of a landing strip in the dune area and of cabins on the beaches.

The La Galite archipelago is composed of a series of islands over 50km away from the Tunisian coast, a continuation of the Tunisian continental shelf. La Galite is the only inhabited island in the archipelago. There is at present no structure for the collection of waste or waste water. Landing on the islands is currently prohibited to the public. The archipelago is frequented mainly by yachtsmen, often from Europe, and by two scuba-diving clubs based in Tabarka.

In order to preserve the habitat of the monk seal (which has since disappeared), the little western Galiton has been designated by Decree of the Ministry of Agriculture since July 1980 an Integrated Nature Reserve. In 1995, a Decree of the Ministry of Agriculture banned fishing within a strip of 1.5 NM around the islands.

The archipelago has a great many rare, endemic and threatened species, and may, therefore, be considered of major biodiversity importance: the *Cystoseira stricta*, an endemic brown seaweed which is a bio-indicator of pure waters; the *Phymatolithon calcareum*, a calcareous red seaweed which indicates the presence of a maërl facies, a very threatened species at Mediterranean level; the noble pen shell, a species which is today considered to be on the way to extinction in many areas around the Mediterranean; two gastropods, the knobbed triton and the *Astrea rugosa*; the great black limpet, a rare and very threatened Atlantic species which is a bio-indicator of the western Mediterranean coasts.

The common spiny lobster is subjected to target-fishing, still the main fishing activity in the archipelago.

Today, the archipelago is relatively protected from the impacts of tourism (although it is said that the disappearance of the monk seal is due to hunter tourists) because of the distance from the coast and the poor quality of the shelter. Implementing controlled ecotourist development offers an opportunity for reconciling conservation and sustainable development.

The Dar Chichou Nature Reserve in Cap Bon is interesting because of the combination of forest environments and coastal dunes, and wetlands with nearby cliffs. The site owes its interest to the presence of three little known species confined to the Maghreb, including two reptiles: the *Acanthodactylus blanci* and the *Emys orbicularis occidentalis*. Two mammals are also present: the European otter and the *Ichneumon mongoose*.

The site, which has no legal protection status, is mainly agricultural and the factors of ecosystem destabilization are essentially linked to water management. Nevertheless, the beginning of unchecked tourist activity (building of cabins on the beaches) is an additional threat.

Zembra Island, situated in the north-eastern part of the Gulf of Tunis, presents a very steep,



spectacular coastline with cliffs that continue under the sea as far as the 50m isobath. As regards biodiversity, the area may be considered of major importance both qualitatively and quantitatively (very great number of species, particularly at floral level; four threatened species, including two endemic).

Zembra Island. A.BOUAJINA  
©RAC/SPA

Zembra Island appears on the UNESCO list of MAB Biosphere Reserves with a view to protecting the largest colony of Cory's shearwater in the entire Mediterranean region (the number of pairs is estimated at 25,000). It is also a breeding site of the yellow-legged gull and the Desmarest's shag, and the only Tunisian breeding site of the Audouin's gull. The National Park of Zembra and Zembretta was created in 1997.

Among the listed 200 species of benthic fauna, we may cite the orange madrepora, the gastropods: knobby triton and helmet ton, the ferruginous limpet, an endemic species particularly threatened at Mediterranean level. 42 species of fish, such as the dusky grouper and the greater amberjack, have been listed.

As regards tourist impacts, the Zembra archipelago is subjected to heavy pressure from underwater hunting.

The El Haouaria Nature Reserve is located at the tip of the Cap Bon and is the continental continuation of the Zembra/Zembretta National Park. The El Haouaria Reserve consists of a combination of beaches, rocky coasts and cliffs, the latter presenting a very special interest for

nesting birds of prey (long-legged buzzard, peregrine falcon, lanner, Eurasian kestrel), and migratory birds (between 20,000 and 40,000) such as the pallid harrier, the lesser kestrel, the red kite, the long-eared owl and the common Scops owl as well as for the black stork, the common crane and the golden oriole. It also includes a set of three caves which provide a habitat for about 10,000 bats, including five of the six species known in Tunisia, in particular the *Rhinolophus blasii*. Also present are five endangered plant species, including two that are endemic in Tunisia.

The main threats to the Reserve, which has no legal status as to the conservation of biodiversity, are linked to water management and overgrazing. However, the flow of visitors, as well as the hunting activity, is constantly increasing.

The Kuriat Islands are two islets 2km apart situated near Monastir. The islets are flat and low (a few metres above sea level). Off the northern rocky part of the two islets, maërl formations at shallow depths are considered to be very rare and very vulnerable at Mediterranean level. These islets constitute a migratory stop-over for a bird fauna of international importance, such as the slender-billed gull, listed as a vulnerable species.

They are one of the furthest west nesting sites in the Mediterranean, and one of the most threatened (frequentation caused by the proximity to Monastir, tourism and coastal fishing) of the loggerhead turtle. For this reason, they constitute a vulnerable ecosystem.

The Kuriat Islands at present, though threatened, have no statutory protection.

The Bordj Kastil site is a coastal lagoon with a few islets situated on the east coast of the island of Jerba. Covered with dunal salt-loving vegetation, the lagoon is a major site for the passage and wintering of migratory birds such as the greater flamingo, the spoonbill, the yellow-legged gull, the Caspian tern, the common tern and the little tern.

The site is not protected and has been under considerable pressure from tourism (visits to an ancient Turkish fortress).

The Thyna salt marshes south of Sfax are a wintering, passage and nesting site for water birds: gull-billed tern, common tern and little tern. It is one of the rare nesting sites of the slender-billed gull. It is also a major wintering site for the great cormorant.

The site is a hunting reserve under pressure from a leisure park.

## **Action taken**

Tunisia has not exploited all of its natural coastal environment but has become aware of the need to develop and protect its littoral with a view to ensuring sustainable development. This strategy of protecting the marine and coastal environment has involved all the aspects concerned such as development and management, (integration and development of the littoral, protection and management of its natural and cultural heritage; preparation of blueprints for the development of sensitive coastal areas), protection against marine erosion and conservation of natural resources, protection against the various forms of pollution, and measures in favour of marine resources.

To supplement this effort, a national strategy for sustainable coastal tourism has been implemented. The aim is to promote a tourism that respects the environment as a guarantee of product quality. Legal and statutory structures have been established, notably plans for the development of tourist zones whose implementation has led to an integrated form of tourist development based on diversification of supply and development of new tourist possibilities: Saharan, sports, cultural, ecological, etc.

Implementing the marine and coastal environment protection strategy has led to an enhancement of the existing legislative and institutional framework in these fields. In this way, the Code de l'Urbanisme et de l'Aménagement du Territoire (Town and Country Planning and Development Code) has been revised to integrate the prevention of environment degradation. In 1995, the Agence de Protection et d'Aménagement du Littoral (Agency for the Protection and Development of the Littoral) was set up to apply state policy on the protection of the littoral in general, and the public marine domain in particular.

Within this framework, the creation of a network of protected marine and coastal areas, situated mainly in an insular environment (La Galite archipelago, Kerkennah Islands, Kuriat Islands, Zembra and Zembretta Islands, littoral from Cap Negro to Cap Serrat) should be noted. The network was established for the following purposes: (i) to guarantee the protection of marine environments and species, particularly by developing a legal and institutional framework for establishing protected marine areas in Tunisia (framework law on protected marine areas); (ii) to contribute to the sustainable development of coastal areas, particularly by the controlled development of ecotourism; (iii) to contribute to raising public awareness for the protection of biodiversity.

There is also a project to install a video surveillance system in monk seal habitats in La Galite to detect any possible return.

### Overview

Species	Site/habitat	Protected area	Source of impact, level of disturbance and trends	Action taken or envisaged
Submarine fauna		Zembra/Zembretta N.P.	Underwater hunting	Development and management plan
Loggerhead turtle	Kuriat Islands		Water sports	Plan to create a protected area
Avifauna and bats		El Haouaria N.R.	Overcrowding and hunting	
	Bordj Kastil lagoon		Overcrowding	
Avifauna	Thyna salt marshes		Tourist development urban	
	Zouarâa/Nefza and Dar Chichou beaches and dunes		Building cabins	

Table 18: Tunisia – Overview of impacts

## 2.20 Turkey

### Overall situation

Since 1989, Turkey has developed a determined policy of nature conservation with the implementation of new regulations that allow the creation of Specially Protected Areas (SPA) as referred to in the Barcelona Convention. Since that date, 385,000 ha and 1,300 km of coastline (25% of the total) have enjoyed protection status and the first management steps are under way. Eight sites have been designated Marine Protected Areas:

Datcha Botzburum (147,000 ha, of which 116,900 ha are terrestrial)

Fethiye Gocek (16,300 ha, of which 30,000 ha are terrestrial) essentially devoted to the protection of the loggerhead turtle

Foça (2,750 ha, of which 1,550 ha are terrestrial) essentially devoted to the protection of the monk seal<sup>9</sup>

Gokova (52,100 ha, of which 24,500 ha are terrestrial)

Goksu Delta (23,600 ha, of which 17,800 ha are terrestrial and wet zones)

Kekova (26,000 ha, of which 14,500 ha are terrestrial)

Koycegiz Dalyan (38,500 ha, of which 28,300 ha are terrestrial)

Patara (19,000 ha, of which 14,800 ha are terrestrial) essentially devoted to the protection of the loggerhead turtle.

### **Sources of impact**

The main sources of impact cited in the National Report are: rapid urban development (second homes) and corollary sources of impact (discharge of untreated waste water, removal of sand from dunes), building of sea infrastructure (ports, marinas, harbour walls, etc.), increased motorized boating, tourist high season which corresponds to the monk seal birthing season, diving and sports fishing.

### **Impacts on species, habitats and protected areas**

There are a great many sites in Turkey where the imperatives of protecting sites and habitats and of conservation of flora and fauna conflict with the objectives of economic development and, in particular, the development of seaside resort tourism. A great number of beaches, the traditional habitat of the monk seal (before it found refuge in the caves) have been developed for seaside resort tourism. Urban development is not accompanied by the necessary facilities for the treatment of solid waste and waste water, etc. A great many cases are cited in the available literature but it was impossible to present them all. We will therefore limit ourselves to the Bodrum site, which summarizes fairly well the situation on the Turkish littoral.

The Bodrum Peninsula is an example of a coastal site which has been largely degraded by tourist activity. The principal causes of environmental destruction are excessive urban development (due mainly to second homes), increased domestic pollution in the summer, and illegal fishing in the Posidonia meadows. The main threatened species are the monk seal, the Audouin's gull, the Eleonora's falcon and the sea daffodil. As regards the monk seal, it would seem that the most important problem remains diving, particularly in the caves of the south coast of Karaada Island. In spite of the ban promulgated in 1991, a number of diving centres continue to offer diving sessions in the caves inhabited by monk seals. Moreover, a hotel complex has been built in Cap Akyarlar (Bodrum Peninsula) above a cave occupied intermittently by monk seals; this was done in spite of an impact note.

### **Action taken**

Out of the 17 sites listed as important for the monk seal by different Turkish institutions (the SAD-AFAG NGO, METU-IMS and TUDAV – Turkish Marine Research Foundation), 5 were designated at the 14<sup>th</sup> Meeting of the Monk Seal National Committee (27 December 1999) to become Conservation Areas (Monk Seal Protected Areas – MSPAs): the islands of Gökçeada and Bozcaada, Baba br. and the area around Çanakkale, the area between Izmir and Aliage including the Foça SPA, the coastal area between Çesme and Kusadasi, the Bodrum Peninsula between Güvercinlik and Bodrum, various areas of Cilicie between Gazipasa and Tasucu).

At statutory level, various provisions have been prepared by those institutions and the Ministry of the Environment. They divide the statutory texts into two parts: general codes to be applied in all sectors, and special codes designed to meet the specific needs of each sector.

The rough outline of the general code includes the following restrictions:

1. Entry to the monk seal caves by whatever means (except for researchers)
2. All types of building such as second homes, roads, tourist facilities - temporary or permanent - and all forestry clearance work shall be banned within a radius of 1,000 m from the Monk Seal Protected Area
3. A speed limit shall be imposed on any boat entering an MSPA
4. Regulations on fishing in MSPAs shall be laid down by the Ministry of Agriculture
5. No aquafarm may be developed in the vicinity of an MSPA and existing farms must install protection nets to avoid any conflict between the monk seals and the aquafarmers.

Turkey is one of the four countries concerned by the SMAP project (cf. 3.3.1.8) and has designated for it the monk seal and its habitats as a Mediterranean hot spot. The relevant studies are



being done on the sites of Foça (extended to Yeni Foça), the Karaburun Peninsula (near Izmir) and Aydıncık.

The project, due to be completed within 22 months as from March 2002, consists in implementing a management plan as a pilot scheme with demonstrations on effective ways of integrating nature conservation into socio-economic development with all the actors involved.

The planned results concern the following:

- Preparation of management plans for the three sites on the basis of guidelines that involve all partners
- Generation of socio-economic benefits for local populations, provided by pilot economic activities linked to making best use of biodiversity and landscapes (amateur angling, excursions using the boats of local professional fishermen, etc.). These operations are intended to sensitize local partners to sustainable management of the areas concerning them
- Promotion of innovative partnership mechanisms between local partners, NGOs and local authorities
- Increasing environmental awareness and raising the level of acceptability of the conservation objectives.

At the beginning of 2003, an operation was launched as part of the SMAP project by one of the originators<sup>42</sup> of the WWF project for the protection of the monk seal in Cilicie. It consisted in organizing visits to the sites of the WWF project in Cilicie and Foça two or three times a year for small groups of "nature lovers", using boats rented from local traditional fishermen. The purpose of the operation was to contribute to one of the project's objectives by showing local fishermen – as the chief partners of the protected area – that "soft" tourism (watching the monk seals) was not only possible but could also improve their standard of living.

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<sup>42</sup> Gruppo Foca Monaca : <http://www.focamonaca.it/>.

**Overview**

Species	Site/habitat	Protected area	Source of impact, level of disturbance and trends	Action taken or envisaged
	Fragmentation of habitats		Rapid growth of uncontrolled urban development in the absence of a plan for the management of coastal areas	
	Pollution, eutrophication		Discharge of untreated waste water	
	Deterioration of dune systems	Several protected areas	Removal of sand from dunes for building, trampling	
	Underwater meadows		Building of ports, marinas and other marine infrastructure Rapid growth of diving activity	
Disturbance caused to marine fauna, especially the monk seal				Several actions have been undertaken including the rewriting of statutory codes for the Monk Seal Protected Areas (MSPAs), implementation of the SMAP project for which the monk seal has been chosen as a hot spot species on the sites of Foça, Karaburun and Aydıncık, etc. But it seems that the programmes are focusing more on biodiversity and less on the corollary environmental problems of urban development (waste, waste water, etc.) The conservation NGOs are very active

Table 19: Turkey – Overview of impacts

**CHAPTER III**

**SUMMARY OF THE NATIONAL  
REPORTS - SOURCES OF IMPACTS  
AND TOURIST IMPACTS ON  
HABITATS AND SPECIES**



A study of the National Reports reveals that five major kinds of habitat are disturbed by tourist activity: coralligenous communities, Posidonia meadows, beaches and coastal dunes, rocky coasts including caves, and coastal wetlands.

As regards flora, it is mainly the underwater meadows and communities associated with dunal environments that are most affected, and, in second place, plant formations in the wetlands.

As to fauna, it is clear that the monk seal, marine turtles, marine and coastal birds, a limited number of fish species, certain marine molluscs, some sponges, corals and, to a lesser extent, sea urchins are affected by the impact of tourist activity.

As is shown below, the degradation of habitats and the impacts on different animal groups mentioned are closely linked, although certain impacts on fauna are not directly due to the degradation of habitats.

## 3.1 Sources of impact

### 3.1.1 Negative impacts

The first source of impact is undoubtedly the urbanization of the coast for the requirements of tourist development. This urbanization was undertaken rapidly and aggressively starting from the 1960s/70s in three countries – Spain, France and Italy. Many habitats and ecosystems were broken up and disappeared, along with their associated flora and fauna. In these countries, the backlash began to be felt from the late 1990s, when the public showed a distaste for destinations which had lost much of their attraction: beauty of site, untouched nature, quality of bathing water, etc., and turned away from the coast to look for more natural, less crowded, areas in the hinterland.

This rapid urbanization of the littoral is now happening in other Mediterranean countries: Malta, Greece, Cyprus, Turkey, Lebanon and, to a lesser degree, Tunisia and Morocco. The direct consequences of this tourist urbanization are the absence of, or incorrect, treatment of waste water, leading to pollution and eutrophication of the lagoons and coastal waters; the building of service infrastructure on land and of nautical infrastructure at sea (ports, sea walls, jetties, groins, marinas etc.) that cause the break-up of habitats and hydrodynamic changes at sea (which explains the splitting up or disappearance of certain habitats and species of flora or fauna). Building work done on the littoral gives rise to increased turbidity of the coastal waters and reduced photosynthesis in the underwater meadows and coralligenous communities. The removal of water from the hillside slopes to bring fresh water to the seaside resorts is also a source of major impacts, especially in semi-arid regions. Building dams on rivers that flow to the coast brings about a sedimentary deficit that harms the underwater meadows and the entire food chain.

Seaside activities are another major source of ecosystem disturbance. Beach engineering for bathers could be the source that sparks off the phenomena of erosion, trampling of plants, destruction of marine turtle nests, and disturbance of turtle behaviour (because of the noise and because of nocturnal lighting). Water sports (sailing in motor boats, water scooters, diving) are

sources of disturbance to fauna (monk seal, turtles), direct mortality by boats (turtles, sharks), and degradation of certain marine biocenoses (caves, by diving).



Seaside activities are major source of ecosystem disturbance.  
©RAC/ASP

### 3.1.2 Positive impacts

But tourism does not only have negative impacts. The new tourist trends – environment-friendly tourism, sustainable tourism, ecotourism, the search for pristine natural landscapes, for fauna-watching activities, for quality bathing water, for contact with local people, etc. – can also be a source of improvement in the quality of the environment in the existing seaside resorts, and of the creation of new protected areas, since from the late 1990s these parameters have become tourist products with high added value. Thus these could be positive tourist development impacts on habitats and biodiversity, if the states have the political will to find the financial and technical means necessary for safeguarding this heritage.

## 3.2. Habitats

### 3.2.1. The coralligenous community

After the *Posidonia* meadows (cf. 3.2.2), the coralligenous communities are the second biodiversity hot spot in the Mediterranean, a biodiversity conservation stake. They are mainly developed in the south-western Mediterranean (south of Spain, Morocco, Algeria, Tunisia) for the red coral and in the eastern part of the Mediterranean (black coral). The main threats are pollution, turbidity (created by divers and work done on the coast), and removal. Coral is torn off by divers (possibly for sale to tourists) along with other species that are present, like the gorgonians.

### 3.2.2. *Posidonia* meadows

The main reasons why *Posidonia* meadows are declining are identical throughout the Mediterranean littoral. Direct and indirect causes can be seen.

Direct destruction of the meadows is due to the building of boating ports, sea walls and other infrastructure linked to the development of water sport activities. Also to be borne in mind is the building of pipelines to carry water away from the seaside resorts' waste water treatment plants. The destruction of these environments is not simply due to the influence of the facilities and the transformation of the substratum, but also to the modification of coastal currents caused by such building. This modification of currents may either cause the *Posidonia* mattes to be pulled away, or make the water more turbid, thus harming the normal growth of the plants.

Pollution is also an important factor for the degradation of meadows, pollution through the direct discharge of untreated waste water from the accommodation and catering infrastructure in the seaside resorts, or the unchannelled (even illegal) pollution along the coasts. It would seem that detergents are the pollutants that are most harmful to the meadows. Pollution through the direct discharge into the sea of waste water from sailboats is also a factor for degradation which, even when it is in a restricted area, may sometimes be locally important because certain sites are so crowded.

The development of sailing means that *Posidonia* are detached by boat anchors. This happens frequently in the outer harbours of marinas when these are overcrowded, and in some coves.

As for indirect causes, the most important are those linked to modifications in the supply of sediment and nutriment. To take the example of the Nador lagoon in Morocco, when a dam was built on the river to supply a seaside resort with fresh water, this brought about a change in the salinity of the water (over-salinization) and – particularly – a deficit in the supply of sediment (and of terrigenous nutriment) which had a negative impact on the meadows.

### **3.2.3. Vermetid (*Lithophyllum lichenoides*) platforms**

*Lithophyllum lichenoides* platforms (littoral platforms) are mostly present in Lebanon, Israel, Cyprus and the Tipaza region of Algeria. They are of particular interest because of the richness of their flora and fauna and also because they protect the littoral against erosion. In the eastern Mediterranean, the main threat lies in the development of infrastructure (accommodation, roads, ramblers' paths), as is particularly the case for the Shiqmona site in Israel. Trampling by bathers and fishermen is also a factor in the degradation of this habitat (Sardinia).

### **3.2.4. Rocky coasts and caves**

The main degradation of rocky coasts is due to the building of accommodation infrastructure or infrastructure giving access to the beaches beneath the rocks.

The collection of date-shells also causes major degradation throughout the entire Mediterranean basin, particularly on the east coasts of the Adriatic Sea. Date-shells are collected by divers who pull the animals out of their holes with pliers, pounding the rock and the blocks of stone, going so far as to destroy the rocky substratum with pneumatic drills. This kind of fishing has a devastating effect: the native benthic communities are totally wiped out and nothing is left but a calcareous desert; erosion worsens, with steep cliffs exposed to the action of the sea. Furthermore, because the species has a very slow growth rate, decades are needed for mature populations to be re-established. Fishermen are therefore constantly forced to look for new sites, which are then exploited to the point of destruction, reducing the possibility of producing the new larvae that are indispensable for re-colonisation<sup>43</sup>.

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<sup>43</sup> National Natural History Museum (France) – French protected invertebrates.



Caves, when they are at beach level and cannot be reached along the seashore, are very little degraded as habitats except for the accumulation of rubbish washed up by the sea.  
©RAC/ASP

When caves are under water, they undergo degradation caused by underwater diving. Corals and certain organisms like sponges with a calcareous skeleton, 'coral sponges', discovered in the late 1960s (the carnivorous *Asbestopluma hypogea* and the Hexactinellida *Opsacas minuta*, for example), much sought-after by researchers and collectors, usually live in dimly lit places, particularly underwater caves, where diving with breathing equipment disturbs the environment by making air accumulate on the cave roofs and increasing turbidity (harmful for the coral) because of the movement of the flippers.

Under water Cave : sought-after by researchers and collectors.

A.BOUAJINA ©RAC/SPA





### 3.2.5. Beaches and coastal dunes

The main disturbance of the sandy environments comes from work done to develop tourist activity. Infrastructure development is the main threat hanging over sandy coastal environments. In countries where tourist development is rapid and uncontrolled, the littoral dunes constitute deposits of sandy material for building work. Removal of the sand brings about the disappearance of the plant formations that stabilize the dunes, which thus become vulnerable to erosion by water and – especially – wind. Dune environments, easily worked by public works equipment, are also choice environments for building the transport and accommodation infrastructure of seaside resorts. Channels that communicate with wetlands are also places that attract the building of sea walls and ports.



The plant formations stabilize the dunes and the beaches. M.N. Bradai

Modification of the supply of sediment is also an important threat to beaches and dunes. Any building out to sea (sea walls for the building of marinas, groins to develop bathing beaches, etc.) is likely to modify shore currents and, thus, supply of sand, and set off phenomena of erosion at greater or less distance. A deficit in the supply of sediment is also caused by the building of dams on the big rivers (for example, to supply the seaside resorts with fresh water in the driest regions); sediment is then stored in these reservoirs and can no longer be mobilised to enrich the beaches that are subject to erosion. The phenomenon has been found frequently and has particularly been noticed in France on the Languedoc coasts to the west of the Rhône delta. Removal of sand from river beds (Lebanon, Morocco, Algeria) for building the accommodation infrastructure is another cause of the reduction in the sediment brought down by the rivers to the sea.

Trampling of the dune plant formations, either on the beach or in the dunes, also causes loosening of the plants that retain the sand. All-terrain vehicles driven on the beaches and littoral ridges is another important factor in the degradation of these environments.

Building in the sand of the beaches and dunes modifies air currents and water seepage and helps set off phenomena of erosion by undermining around concrete elements, particularly during storms.

As man takes over the beaches for resort tourism (every kind of development, concreting the upper beach, nocturnal lighting) this causes the marine turtles to abandon their egg-laying areas and the monk seals to abandon their resting and nursery areas.

### 3.2.6. Coastal wetlands



Coastal wetlands, with usually brackish waters, are most frequently environments cut off from the sea by a dune ridge, communicating with the sea by a channel. Wetlands are extremely rich and very important environments, not only for the flora and fauna which are peculiar to them, but also as nesting or feeding sites for migratory birds, and reproduction and feeding sites for the juveniles of many species of marine fish, etc. R.Tinarelli

Threats concern the complete transformation of the environment by draining and/or filling in for the building of infrastructure, modifications in the supply of (fresh or salt) water and sediment by the building of dams upstream to supply fresh water to the seaside resort complexes, dredging and the building of marinas and ports protected from the swell, the discharge of untreated waste water from the resort complexes, modification of currents and the fresh/salt water balance by changing the outlets to the sea (laying ducts for the building of roads, building of ports, and dredging of channels to give better access for sailing, etc.).

## 3.3. Species

### 3.3.1. The monk seal

#### 3.3.1.1 Status and causes of decline

The monk seal is one of the 12 most threatened animal species in the world<sup>44</sup>, the decline of its populations being extremely rapid. Two distinct populations survive, one on the north-western coasts of Africa, the other in the eastern Mediterranean. The monk seal is extinct in Lebanon, Tunisia, France (Corsica), Italy (Sicily, Sardinia and the Tuscan Archipelago) and Spain (peninsula and Balearic Islands). In the last three countries, it seems that the explosion of tourist activity in the late 1970s caused this extinction. It has not been sighted in Egypt. In Albania and Croatia, as in the rest of the Adriatic Sea, it is seen as an occasional visitor. In Algeria, the decline in its populations speeded up after the 1980s and there are now probably only 2 to 4 individuals. In Morocco, a small, declining population survives near the cap des Trois-Fourches. In Cyprus, extinction seems imminent. Greece has the biggest Mediterranean population, thought to be 200 to 300 individuals, and Turkey the second biggest, but in fact this is the same group (Aegean Sea population). The scientific community believes that the Aegean monk seal population has dropped to a very low level.

The main reasons for the decline of monk seal populations are loss of habitat and disturbance caused by tourist activity, diminishing stocks of coastal fish because of over-fishing, direct destruction by fishermen (the monk seal is seen as a rival), and drowning, when seals are caught up in nets.

<sup>44</sup> The Monachus Guardian



Monk seals now live on rocky coasts and their young are raised in caves open to the sea. But this may be was not always so, and it appears that this habitat is a refuge since the beaches which used to be the species' natural reproduction habitat have been largely developed. ©RAC/SPA

### **3.3.1.2. Development of infrastructure**

The first cause of disturbance of monk seal colonies is the development of the coast for seaside resort activities, particularly the building of infrastructure near resting and reproduction sites.

Reading the National Reports and documentary research show many cases of hotel infrastructure being built near caves frequented by monk seals. Some recent examples:

- In Greece, approval was granted for the building of a hotel in the Ithaca Strait immediately next to caves frequented by the seals
- In Turkey, a hotel complex was built in Cap Akyarlar (Bodrum Peninsula) above a cave intermittently occupied by the seals, despite a (slight) impact study
- In Cyprus, a hotel complex was built in the Asprokremmos area (Akamas Peninsula), an important marine turtle reproduction site and also one of the island's rare remaining habitats for the monk seal.

All this building was done without any (or only very slight) environment impact studies being done. Even when studies are done, since the tourist industry is the main motor that drives the local economy of these regions, usually the building of this infrastructure is started on despite any recommendations made by the studies.

### **3.3.1.3. Water sports**

The development of boating is an important factor in disturbing the monk seal, particularly during the reproduction period (August to September), a period which also has the highest rate of tourist frequentation. Many cases are mentioned in the literature on the subject. In Greece, in Kefalonia Island, for example, sailboats go right into the caves and this has caused a drastic reduction in the number of visual 'contacts' made with the seals. Diving is also an important factor in disturbing seal colonies. Again in Greece, the Megalo Seitani cove/beach in the island of Samos has been strictly protected since 1980 and is part of the Natura 2000 network. But Samos is also famous for nudism and although it is difficult to reach the beach by land, a website<sup>45</sup> informs tourists that access by sea is possible from Karlovassi (name of boat, fare, etc.).

As a result, undisturbed sites available for the monk seals to rest or reproduce are increasingly cramped and do not allow groups of animals (the monk seal is a gregarious species) to rest and reproduce properly.

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<sup>45</sup> <http://www.geocities.com/HotSprings/1794/greekade.html>

#### **3.3.1.4. Organised visits to the caves**

Several cases are mentioned in the literature on the subject (e.g. the Grotta del Bue Marino de la Cala Gonone, the Orosei Gulf in Sardinia) of visits to caves being organised for seal-watching during the reproduction period. The presence of monk seals in a site is without the slightest doubt a tourist advantage: many of the tour operators' brochures and websites – particularly in Greece (Northern Sporades) and Turkey (Bodrum Peninsula) – laud the quality of the sites to be visited by mentioning the presence of 'one of the world's most threatened species', and sometimes advertise swimming with seals. The same holds good for the Orosei Gulf's website, and there over-exploiting of the site resulted in the extinction of the monk seal<sup>46</sup>. Extremely rare are those in the tourist business who inform visitors about the risks the species is running if disturbed.

This advertising, given its commercial character, is thus one of the main future threats hanging over the survival of the eastern Mediterranean monk seal populations.

#### **3.3.1.5. Hunting**

Hunting by tourists seems to be very unusual. Nevertheless, it is possible that the three last seals in the La Galite National Park in Tunisia (especially created to protect this species) were in fact killed by tourists<sup>47</sup>. Other – rare – similar facts and eye-witness accounts have also been reported in Tunisia (Zembra), Turkey and Morocco<sup>48</sup>.

#### **3.3.1.6. Fishing**

Possible seasonal over-exploiting of fish stocks in tourist areas to feed consumers during the period when the seals give birth and raise their young may be seen as an indirect threat to monk seal populations.

Reduced stocks would explain the damage caused by seals to fishermen's nets, since seals attack the nets to get food. This is one reason for rivalry between fishermen and monk seals.

#### **3.3.1.7. Developing and managing protected areas**

Directives on designing plans to develop and manage marine protected areas are often badly enforced because of the pressure exerted by tourist circles and the interest of short-term profitability, and also because of the lack of means for monitoring, awareness and information.

With the exception of a few protected areas such as the Alonnissos Marine National Park in the Northern Sporades in Greece, where the means are appropriate for rigorous management of the various zones of the protected area, the main problem is that the means needed in the summer period (especially as regards staff, cars, and boats), when tourist pressure is at its height and when the risk of disturbing the monk seals is greatest, far exceed what is necessary for the rest of the year. Many marine protected areas have no boats to patrol the coasts. Often the local authorities are unaware that the protected areas present on their territory have monk seals and tolerate, or even encourage, the development of tourist activity. This does not automatically imply the building of infrastructure (although some cases are mentioned) but rather the introduction of 'products' such as

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<sup>46</sup> The seal is still a tourist attraction product for the Bue Marino Cave in Sicily, as can be seen in an ad on the website [http://www.italiantrip.net/62the\\_gulf\\_of\\_rosei/itinerario62.htm](http://www.italiantrip.net/62the_gulf_of_rosei/itinerario62.htm): On the Gulf of Orosei, you can take a boat to the Grotta del Bue Marino (or Grotto of the Monk Seal, an animal which perhaps was once found here).

<sup>47</sup> UNEP-MAP (1994).

<sup>48</sup> UNEP-MAP (1998).

boat visits to beaches or caves, diving, etc., about which the authorities have not been informed, since no rules make it obligatory to receive a permit prior to such activities in protected sites.

### **3.3.1.8. Action taken**

A project funded by the European Union (Conservation and Management of Biodiversity Hot Spots: Developing a Mediterranean Network) was launched in March 2002 as part of the Short- and Medium-Term Environmental Action Programme (SMAP). Coordinated by the WWF MedPO based in Rome, the project concerns 4 Mediterranean countries (Turkey, Morocco, Algeria and Lebanon), each having designated a site that represents an endangered species and its associated habitats. The monk seal is one of the species concerned by this project. For further details on the aims and actions of this project, refer to §2.20.

Turkey – action taken

### **3.3.2. Cetaceans**

For several years now, whale-watching has been an increasingly popular activity as such, often allied to ecotourism<sup>49</sup>, particularly off the Balearic Islands, in Spain. In the Canary Islands, one of the world's great whale-watching sites, the activity has been strictly regulated since 1995 and the rules modified in 2000. Tourist interest is growing and – the activity now becoming a source of income – the travel agencies and other tourist organisations are also showing an increasing interest, offering whale-watching trips out to sea without an idea of the damage this can cause the cetacean populations.

Extremely strict rules must thus be prepared and enforced, based on in-depth studies as to carrying capacity, the creation of integrated reserves, and after training, information and awareness actions.

### **3.3.3. Turtles**

#### **3.3.3.1. Loggerhead turtle**

This is the commonest marine turtle species in the Mediterranean. It breeds on the beaches of Syria, Greece (Zakynthos, Kyparissia, Lakonikos and in Crete, Rethymnon and Chania) and Tunisia (between Monastir and Chebba and in the Kuriat Islands).

Today, about one third of the beaches used by turtles have been developed for tourism: infrastructure, resort activities and water sports, nocturnal lighting, etc.

Locally, for example in Morocco, shells of turtles accidentally caught in fishing nets (and usually brought up dead) are sold to tourists.

#### **3.3.3.2. Green turtle**

Although present throughout the Mediterranean basin, the green turtle only breeds on the beaches of Egypt (Sinai) and Turkey.

Degradation of the reproduction sites by beach development (infrastructure, resort activities and water sports, nocturnal lighting etc.) is the main threat to the species.

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<sup>49</sup> On this point, whether 'watching' tourism, especially whale-watching, is an ecotourist activity, see § 4.6.1.

### 3.3.4. Avifauna

Our overview of the impacts of tourist activity on the avifauna comes from the information appearing in the National Reports (few details) and patchy information taken from literature on the subject. The overview is far from exhaustive. The main information, which has been cross-checked and can thus be considered 'pretty reliable', appears in Table 20. It should be noted that this only concerns impacts linked to tourist activity. But the line between activity linked to tourism and 'usual and/or traditional' activity is extremely unclear. Is a hunter from the north of France who goes to the Camargue to shoot ducks during the open season a tourist? Is collecting eggs, a very common activity in the North African countries, really linked to tourism?

Four main trends emerge from this overview:

1. In all the countries, making best tourist use of the dune ridge and, especially, the lagoons causes impacts on the avifauna that are both direct (disturbance of individuals, abandoning of nests, direct mortality, etc.) and indirect (splitting up and degradation of habitats, disappearance of feeding, rest and nesting areas, etc.).
2. In the countries of the 'north-west' Mediterranean basin, France, Italy and Spain, it would appear that the impact of tourist activity on the avifauna is restricted, at the worst, to disturbing the avifauna because of over-frequentation of sites, thanks to well-organised awareness and information and to sufficient means.
3. For Croatia, Cyprus and Greece, the impacts, also linked to overcrowding, appear to be much greater, because of either a lack of awareness and information or the means and staff to enforce the rules.
4. In the countries of the south and east of the Mediterranean basin, plus Albania and Malta, the main threats hanging over the avifauna are the collecting of eggs and nestlings, the catching of passerines and hunting. Nevertheless, the real causes seem to differ from country to country. Malta seems to have a long tradition of hunting and it is not certain that the proportion of 'tourist/hunters' is very great. On the other hand, it is certain that many foreign hunters exploit the Albanian institutions' lack of means to remove a large number of avifauna, especially those which are protected in their own countries. In North Africa, even if it is not impossible that foreign hunters are hunting illegally, it would appear that what we have here are 'traditional hunters', i.e. hunters who hunt to feed themselves. As regards the collecting of eggs and nestlings and the catching of passerines, the reasons for this are not entirely clear (in the National Reports and the literature on the subject). Eggs could be either a source of food or an object of international trade for collectors (like passerines).

At species level, birds of prey and limicolous and marine birds are subject to the most marked impacts:

- disturbance caused to nesting and migratory birds of prey is due to disturbance due to the rocky coasts and cliffs being over-frequented (Croatia, Tunisia and to a lesser extent Malta)
- overcrowding of the rocky littoral is also the main threat hanging over marine birds, as well as the collecting of eggs and hunting in certain countries (Malta, Lebanon), although it is not certain that these activities are entirely directly linked to tourism
- as regards the bird communities in the wetlands, many factors come into play:
  - the modification, splitting up, reduction and disappearance of habitats
  - the partial or total filling in of wetlands and lagoons to build boating ports, marinas and seaside resorts
  - pollution from the discharge of untreated waste water from tourist establishments
  - the drying up of wetlands because of the removal of fresh water to supply the tourist resorts
  - modification of the supply of sediment (and consequent modification of flora and fauna) because of the building of reservoirs on rivers that supply the wetlands, to provide fresh water for the seaside resorts
- hunting and collecting eggs.



Bird communities in the wetlands (Flamingos in the picture) are subject to the most marked impacts : the modification, splitting up, reduction and disappearance of habitats. A. Demetropoulos

Species	Threat	Country
Dalmatian pelican	Hunting	Albania
Sea birds	Hunting, collecting eggs, collecting nestlings	Lebanon
Balearic shearwater, British storm petrel, Cory's shearwater, yellow-legged gull	Hunting	Malta
Passerines (blue rock thrush, spectacled warbler, short-toed lark)	Hunting and trapping	Malta
Avifauna generally	Hunting	Tunisia
Limicolouss, especially anatidae	Collecting eggs	Algeria
White-tailed sea eagle	Modification, habitat splitting, hunting	Albania
Pygmy cormorant	Modification, habitat splitting, hunting	Albania
Avifauna generally	Disturbance, hunting	Morocco
Limicolouss, anatidae	Drying up, filling in lagoons for tourist urbanization, collecting eggs, hunting	Morocco
Yellow-legged gull	Disturbance	Cyprus
Eurasian jackdaw	Disturbance	Cyprus
Birds of prey: griffon vulture, Eleonora's falcon, golden eagle, honey buzzard, short-toed eagle, peregrine falcon, eagle owl)	Disturbance, crowding	Croatia
Audouin's gull	Disturbance, overcrowding	Croatia
Sea birds	Disturbance, overcrowding	Greece
Nesting (buzzards, falcons) and migratory (harriers, kites, nocturnal) birds of prey	Disturbance, overcrowding	Tunisia
Limicolouss (flamingos, spoonbills) and sea birds (gulls, terns)	Disturbance, overcrowding	Tunisia

Table 20: Overview of impacts on avifauna

Very many actions have been taken to protect the avifauna of the Mediterranean basin, particularly birds of prey and sea birds, such as the Action Plans coordinated by BirdLife International, funded by the European Commission, and put into effect in the late 1990s: ferruginous pochard, pygmy cormorant, Eleonora's falcon, bearded vulture, Audouin's gull, Dalmatian pelican, Desmarest's shag, Balearic shearwater. These species, the most threatened, do not seem to be subjected to specific impacts from tourist activity.



### 3.3.5. Fish

#### 3.3.5.1. Toothcarps

Three species are concerned: the Spanish toothcarp, the Corsican toothcarp and the Valencian toothcarp.

The Spanish toothcarp and the Valencian toothcarp are endemic species of the eastern coast of the Iberian Peninsula that live in fresh and brackish waters in the Valencia region and in Catalonia (the second). They were present in France in the 1950s, but seem to have disappeared. Tourism does not seem to have had a direct impact on these species. The main reasons for their dwindling populations are linked to their habitats becoming scarce and degraded, to pollution, and to being sought-after for aquariums.

The Corsican toothcarp frequents fresh and brackish waters. It is seen as a threatened species in the Maltese archipelago, where the increasing scarceness of its habitat endangers it.

#### 3.3.5.2. Groupers

The Mediterranean dusky grouper and the dusky grouper had all but disappeared in the north-west Mediterranean because they were over-exploited by underwater hunters, sometimes with breathing apparatus. A ban on fishing them, the creation of reserves, and information and awareness within the diving clubs enabled populations to develop again, but the numbers are still very low. The positive effect of creating reserves where fishing and underwater hunting are banned is highlighted by the very good reconstitution of grouper populations in the Port-Cros National Park in France (cf. § 2.8).



RAC/SPA

Divers then turned to the eastern Mediterranean, where it is marketed, and the Mediterranean west African coasts, where the grouper is starting to become rare in certain sites (Al Hoceima Park in Morocco).

#### 3.3.5.3. Sea horses

The causes of the decline of (short-snouted and ramulosus) sea horse populations do not seem to be well known. Perhaps the degradation of its main habitat, the Posidonia meadows, is one of the main causes, but fishing for sale to tourists as souvenirs is certainly an additional threat factor, particularly in Algeria.

### 3.3.6. Other marine organisms

#### 3.3.6.1. Molluscs

##### a) Date-shell

The date-shell (or rock-borer) is found throughout the Mediterranean. It is eaten almost everywhere in the Mediterranean. The recent development of tourism on the eastern coast of the Adriatic has greatly increased demand. Because it is encrusted in the rock, gathering this species is extremely

destructive. Today, the date-shell is gathered in vast quantities, uncontrolled, so that certain populations have become extinct, causing the decline of rocky seabed associated communities.

b) Noble pen shell

This is the biggest Mediterranean mollusc and one of the biggest molluscs in the world. It usually lives in the infralittoral level in Posidonia and Cymodocea meadows. The shell is greatly sought-after by collectors.



An analysis of the National Reports and the supplementary information shows that the species seems to be abundant in Cyprus and in certain parts of Spain (between Murcia and Almeria, and in Minorca). In Morocco, the noble pen shell used to be present along the entire coast and in the Nador lagoon, but is now very rare there. The Posidonia meadows, which would seem to have existed formerly in the lagoon, are no longer present there.

Populations are being reconstituted very successfully in the Port-Cros National Park, because of the introduction of regulatory measures.

The biggest Mediterranean mollusc *Pinna nobilis*. P.Francour

c) The knobbed triton

This has become very rare throughout the Mediterranean, except for a few sectors, like in southern Spain. This is a collector's piece, brought up by divers. When it is accidentally caught up in fishermen's nets, it is sold to tourists as a souvenir.

d) Cowries

The *Erosaria spurca* cowrie has become very rare, particularly in Cyprus, being brought up by divers for collections. The *Lurida lurida* and the *Zonaria pyrum* cowries are also collector's pieces and have become rare and have probably disappeared in Tunisia.

e) The ferreous limpet

This is a Mediterranean endemic and is certainly one of the most threatened species. It is present in Tunisia, Algeria and southern Spain. It is particularly eaten in tourist restaurants.

f) The *Gibbula nivosa*

This species is greatly prized by shell collectors. It is an endemic species in Malta. Because of its limited distribution, the building of ports or beach engineering can represent a danger for this species.

### 3.3.6.2. Sponges

There is a big tourist trade in sponges in many countries, like Greece and Tunisia. The abundance of certain species has markedly decreased, such as the *Hippospongia communis* in Turkey, where it is no longer profitable for fishermen to collect it.

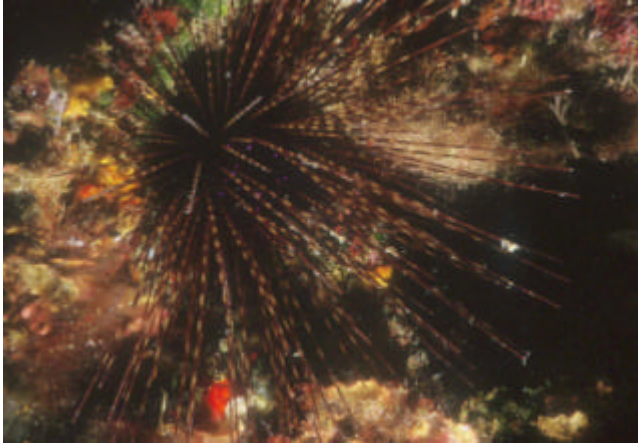
### 3.3.6.3. Cnidaria

The orange madrepora is a species that is present in the south-western Mediterranean (southern Spain, Morocco, Algeria, Tunisia). It is collected by divers but other factors, such as pollution, are probably the root cause of the decline of the species.

The red coral is a species that is more or less endemic in the Mediterranean, where it is essentially concentrated in the western part. It is greatly over-exploited in Morocco and Tunisia, and is sold to tourists.

The black coral *Gerardia savaglia* is extremely threatened throughout the Mediterranean because of being brought up by divers, mainly in Turkey.

#### **3.3.6.4. Echinoderms**



The *Centrostephanus longispinus* sea-urchin is a species whose essential location is in the Mediterranean: from Marseilles in France to Italy, Sicily, Corsica, the Adriatic Sea, the Marmara Sea, Tunisia and Algeria. Outside the Mediterranean it is found in the Canaries. In the western Mediterranean, there have been frequent sightings of *Centrostephanus* but it remains rare.

*Centrostephanus longispinus*. P.Francour

Its thermal and ecological requirements and the obvious aesthetic attraction it exerts are factors that restrict its extension. In the north-western Mediterranean, being brought up by divers endangers it when the populations are very much broken up.

## **CHAPTER IV**

# **ACTION SUGGESTIONS AND RECOMMENDATIONS**

**I**ncreasingly, the ecological heritage, habitats and biodiversity and also protected areas constitute an additional attraction both in themselves and for guaranteeing quality landscapes and environment.

This new passion for protected landscapes and biodiversity brings with it its own risks of degradation, with the development of unchecked, or ill-controlled, tourism: development of access and accommodation infrastructure on fragile sites; habitats being broken up; pollution; overcrowding; disturbance of fauna; geographical and temporal juxtaposition of activities that sometimes have contradictory objectives and generate disturbance likely to harm this sought-after quality; etc.

All these impacts of tourist activity on environments and biodiversity are highlighted in the National Reports, even if certain Reports sometimes skip impacts which are, however, known about.

Protected areas constitute an additional attraction for guaranteeing quality landscapes and environment. A. BOUJINA

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## 4.1. Review of National Reports

From the National Reports, an overview of the impacts of tourist activity on habitats and species can emerge:

- development of accommodation and communications infrastructure at the expense of wetlands and rocky coasts
- development of recreational and communications infrastructure at the expense of beaches and coastal dunes
- pollution and eutrophication of water, whether due to the absence of treatment or to incorrect treatment of waste water
- absence of solid waste collection or this waste being dumped in badly managed/unmanaged or uncontrolled rubbish tips
- degradation of the soil and flora in dunes or at the edges of wetlands by trampling and fire
- degradation of underwater meadows by sailboats' anchors and pollution
- hunting, underwater hunting and fishing (the latter partly for its role in supplying tourist centres)
- disturbance by the use, for sports and 'watching' activities, of the resting, feeding and reproduction habitats of some animal species
- bad (or inexistent) management of protected areas (monitoring, information, education, awareness) for whatever reason
- legislation does not exist or is not enforced.

To reduce or eliminate these impacts, certain National Reports (like Albania's) suggest developing ecotourism or 'soft' tourism. Other Reports (like Croatia's National Report) suggest designing and implementing a strategy of developing ecotourism at the same time as a coastal area integrated management plan. The responses suggested are thus very diverse and underline a kind of impotence faced with a rapidly growing phenomenon.

But from an analysis of the National Reports, four major requirements emerge:

- need to plan, via integrating the protection and best use of protected areas and outstanding habitats within overall strategies of land and tourist development
- need to harmonise sector-based policies: biodiversity conservation, nature protection, urbanization, transport policy, developing tourism, managing waste
- need to coordinate institutions for strengthening legislation, and means and capacity to get the law enforced
- need to possess the appropriate tools to develop sustainable tourism in the protected areas.

These needs are perfectly in line with the results of the work of the CMDD<sup>50</sup> which develops three main lines of suggestions for developing tourist activity on the Mediterranean littoral:

1. Controlling the territorial and environmental impacts of tourism by:
  - preventing and reducing the negative impacts of development, urbanization and infrastructure on the coastal fringe
  - reducing the consumption of natural resources and the pollution caused by tourist accommodation and activity
  - controlling the evolution of tourist leisure activities that affect the marine and coastal environment
2. Promoting tourism that is a factor for sustainable social, cultural and economic development, by:
  - elaborating national and local strategies that aim at a more successful reconciliation of tourism, environment and sustainable development
  - promoting diversified tourism and balanced development of land
3. Developing Mediterranean cooperation.

The following recommendations take up most of these suggestions and needs, going into detail about certain points which appeared in the National Reports.

## 4.2. Policies, regulations and management of space

### 4.2.1. Specific texts for Marine Protected Areas

Marine Protected Areas (MPAs) have peculiar features which distinguish them from Terrestrial Protected Areas (excerpts from ideas from the Mission to create an Iroise Sea Marine National Park in the Atlantic Ocean – France)<sup>51</sup>:

- Its special features mean that the aquatic environment encourages the movement of plants and animals and also of pollutants over great distances. It would be better to have integrated multiple-use management over large areas than highly protected little areas, but the two approaches may be complementary
- Deciding on a pertinent territory cannot be done from the biotope of this or that rare species (few marine species are recognised as such, in comparison with land species) but according to the quality, diversity and complementarity of the habitats. The aim of habitat quality is thus a priority. In a Protected Marine Area, this is expressed in a strict control over all removal, waste, and activity likely to modify the environments. In such an approach, coasts and littoral do not constitute lines but a 'strip' with interacting land and marine environments

<sup>50</sup> UNEP/MAP/PAP (1999).

<sup>51</sup> < <http://www.iroise-parcnational.gouv.fr/site/8-accueil.php> >

- The marine environment is much less well known than the land. For all that, it is not necessary to reject a project because of lack of knowledge if this suffices to decide that the project is ecologically desirable and to mark out coherent boundaries
  - Activities, particularly certain sports and leisure activities, are rapidly expanding but there is no accompanying knowledge of the impacts of some of these. Thus it is important, rather than stopping and freezing the regulations (and these are already very numerous and hardly ever enforced), to acquire tools that enable us to respond to a changing situation with flexibility and efficacy
  - The diversity of services and competencies, the multiplicity of often contradictory customs, imply the use of an integrated management concept
  - The peculiar features of the local communities (especially island communities), and consideration for their own projects and their aspirations, imply the setting up of a specific system of concerted management, with a view to integrating traditional practices and knowledge and making sure that conservation and local development dovetail in local projects
  - The specific features of the environments, of the administrative organisation, and the distinctive identity of 'sea folk', fishermen or islanders, require that the staff in a Marine Protected Area be trained and have special skills.
- The thinking about creating this Marine Park in France showed that there are no specific texts that permit the creation of Marine Protected Areas. There are also gaps in other aspects regarding regulations or enforcement, particularly concerning sea law and policing.

It is clear that no Marine Protected Area could alone protect habitats and biodiversity. The creation of a Marine Protected Area must be seen as a tool of an overall policy of managing coastal areas, complementary to measures taken at national level, such as the laws on the overall protection of habitats and biodiversity, the regulations for controlling urbanization and infrastructure, etc.

#### **4.2.2. Harmonising policies, regulations and the management of the coastal area at national level**

It is obvious from the National Reports that a great deal of work has been done in the Mediterranean countries, more recently in the countries of the eastern and southern basin, as regards deciding on policy, creating the appropriate legislation, particularly as regards nature protection and the conservation of biodiversity, and setting up institutions responsible for implementing these policies and regulatory tools.

But when reading the National Reports we also notice that there is a lack of harmonisation of policy, for example between policy on nature protection and that on developing tourism (when tourism exists), gaps in the regulations in certain countries, (frequently) overlapping responsibilities between institutions responsible for nature protection, and (often, too) a lack of technical and human skills for implementing these policies and effectively enforcing these regulations. In these conditions, improving bills for protection and inter-institutional cooperation are priorities.

In most countries, several ministries and enforcement services are in charge of the conservation of biodiversity, the administration of protected areas, forestry management, water management, public works, tourism, etc. Over a given piece of the territory, this dispersal of technical services is detrimental to the circulation of information and the implementing of concerted policies.

For the great majority of Mediterranean countries, especially those of the southern and eastern Mediterranean (the cases of the little islands will be dealt with separately), the economy of the coastal areas has a major place in the country's overall economy, tourism being one – though not the only one – of the main activities. Harmonising policies and regulations on the various activities that affect the coastal area is thus a necessity. There are many examples of a lack of consistency between different policies or regulations, even as regards certain backers who finance at one and the same time, in the same sites, without consultation, monk seal conservation actions and tourist development operations. It is thus to be hoped that National Agencies for the Sustainable Management of the

Littoral Area<sup>52</sup> be created, as was done in Tunisia (Agence pour la Protection du Littoral) or in France (Conservatoire du Littoral) in the field of nature protection.

These are light structures which could intervene at two levels. At national level, they would be responsible for offering an opinion on the consistency of policies for developing the littoral area, including aspects linked to protection for the environment and biodiversity. This opinion could be offered in the initial stages of a decision for a possible Strategic Environmental Study of any new policy concerning the littoral, particularly tourist development policy. At local level, jointly with the ministries and technical services, they would be consulted on the pertinence of this or that development or project with regard to the package of policies and rules exerted on the littoral. This opinion would not of course replace the necessary environment impact studies for forthcoming projects.

### **4.3. Integrating natural environment, biodiversity, tourism and land development**

#### **4.3.1. Integrating habitat protection and the conservation of biodiversity within the Integrated Coastal Area Management Plans**

To protect habitats and biodiversity, and find a balance between the objectives of conservation and tourist promotion, protected areas must be integrated within integrated management outlines and plans for the coastal areas. Competition between habitat protection and conservation of biodiversity on the one hand and the pursuit of traditional economic activities (fishing, hunting, etc.) and development of new economic activities (including tourism) on the other is often merely conflict about how to use the same resource.

Aware of the need to integrate tourism and the environment more successfully, many Mediterranean states and local authorities have already implemented procedures that have led on to conventions, agreements, protocols and the defining of strategies and programmes.

For several years now, Integrated Coastal Area Management Plans (ICAM) have been put into effect in various countries and various sectors, mostly within the framework of the Coastal Area Management Programme (CAMP) of the Mediterranean Action Plan, run by RAC/SPA since 1989. Similar management plans have been put into effect as part of the MedWet1, MedWet2 and MedWetCoast programmes for wetlands since 1992.

In the various MedWet programmes, habitat protection and the conservation of biodiversity constitute one of the main lines of thought. When some of the Coastal Area Integrated Management Plans are read, it is clear that these are sometimes plans whose major focus is on the economy, where environmental aspects are basically treated from the pollution angle, and where habitat and biodiversity are essentially handled as mere tourist products to be developed.

The elaboration of strategies and plans that aim at successfully reconciling tourism, the environment and sustainable development must be expanded. These strategies must integrate as a basic element habitat protection and the conservation of the flora and fauna of the coastal and marine environments and the existence of protected areas, not just as tourist products but also – especially – as vulnerable, fragile places. The elaboration of these strategies must become perfectly operational by:

- setting objectives with medium-term results
- defining and distributing the roles of the various partners (administrations concerned with tourism, the environment, land development, private sector, association sector, and local people)
- observing the impacts that have already been noticed of tourism on the natural and human environment, the natural and cultural heritage, the national and local economy, the social structures (the impacts on the environment may be direct or indirect: modification of social

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<sup>52</sup> Other countries around the world, like the Ivory Coast, are envisaging the creation of such a structure.



structures and/or local economic activity and impacts on the environment). They may also be cumulative

- defining pertinent follow-up indicators.

These strategies must promote diversified types of tourism that are more compatible with the stakes of protecting habitats and biodiversity and those of a sustainable development of the territories.

### **4.3.2. Island regions that depend heavily on tourism**

Insular isolation, a phenomenon that is well known to naturalists, has often given rise to original endemics. It has encouraged the preservation of terrestrial or marine animal and plant species at a time when industrial development in these regions was weak (when not actually inexistent). The relative size of the number of insular sites on the list of areas covered by community environmental law, or the number of sites classified by UNESCO as being part of the world human heritage, testifies to this situation.

This limited nature of insular places requires the (often difficult) coexistence of men and nature living in a restricted area, and engenders (sometimes lively) conflicts of interest between the diverse forms of economic activity. Obviously, the smaller the available land, and the higher the density of the population there, the more bitter are the clashes.

Problems raised by the tourist industry are notorious because of their intensity and their seasonal quality. The seasonal mushrooming of the island population over a fairly short part of the year has lasting consequences for the public finances and the environment: overprovision of road and sanitary infrastructure, need to satisfy rapidly escalating water and electricity requirements or management of waste, overcrowding of listed sites or fragile ecosystems, pressure on land and property resources, etc.<sup>53</sup>

In the little islands, and along the coast of certain Mediterranean countries, the degree of economic dependence on tourism is growing sharply because of the economic benefits (import of foreign currency, jobs) this activity brings. This is happening even when many are aware of the negative environmental impacts that this uncontrolled development brings in its train. More than anywhere else, protecting the environment and the biological heritage must be taken into account when analysing the benefits of tourist activity. Whether they are seen as more or less hidden inconveniences or additional costs, environmental aspects must be borne in mind to appreciate the true impact of this activity above and beyond its effects on GDP. Any reflection on the environment of island regions absolutely has to have a vision of the long or very long term.

To lessen the impact of mass tourism on the environment, habitats and protected areas, some opinion groups suggest reducing the rate of occupancy in the accommodation structures and in the last resort reducing the flow of tourists to the country. It is clear that it would be ridiculous for the authorities to ask the existing hotels (if they were built completely legally) to reduce their occupancy rate, and that many governments will not take the risk of reducing the flow of tourists since this flow contributes to these countries' GDP.

Often there is talk of developing alternative forms of tourism or making use of appropriate measures to correct the situation. Generally speaking, alternative forms of tourism (nature tourism, cultural tourism, ecotourism, health tourism) are small-scale activities, for small groups, and are not sufficiently profitable. These kinds of tourism are most often seen as diversifying activities that supplement the saturated traditional mass tourist market and thus increase the sites' potential (cf. §4.6.1).

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<sup>53</sup> Taken from EURISLES publications; European Islands System of Links and Exchanges, an interregional cooperation network set up in 1992 on the initiative of the Islands Commission of the *Conférence des Régions Périphériques Maritimes* (CRPM) with financial support from the European Commission (DGXVI) as part of the RECITE programme (RECITE *Conférence des Régions Périphériques Maritimes d'Europe*).

Another alternative type is sometimes suggested in sites that are already saturated by tourist development. It consists of increasing the supply of top quality accommodation (four- and five-star hotels) to attract more tourists with high purchasing power and thus reduce/maintain the flow of visitors while maintaining/increasing income.

It is obvious that all these alternative forms of tourism can have positive effects on the tourist/environment relationship, but in isolation their impacts will be minimal. As the Action Plan to manage the Mediterranean monk seal stresses<sup>54</sup>: "Taken by itself, no measure is sufficient. The various elements of the management plan complement one another and must be introduced together if we wish to be successful."

Thus, in the insular regions, even more than on the coasts of the continental countries, the development of tourist activity and the potential impacts on the environment require an overall strategic vision where development plans are formulated and implemented on various scales, integrating the environmental aspect.

In the Cres-Losinj archipelago in Croatia<sup>55</sup>, a plan to organize and develop the area was made in the early 1990s and put into effect by a management plan in 1996, directed towards development based on local resources and ideas of sustainability. The actors are the archipelago's main tourist operator, associations and local people. Everything is being done to move away from a 'sea, sex and sun' tourist image to a 'health and well-being' tourism: valorizing the natural riches, rediscovering the cultural heritage, developing organic farming, creating educational routes, and protecting the griffon vulture (a species symbolic of Cres Island).

In Malta, for example, a whole package of initiatives was introduced to implement alternative forms of tourist development (incorporating tourist areas within a 'sustainable city' – M'dina) or actions that reduce the impact on the environment (Saint George Eco Hotel Baie). But it is essentially the MAP CAMP 'Malta'<sup>56</sup> and the action plan to be put into effect over the next ten years that will guarantee the sustainable development of some of the country's coastal and marine areas via an integrated approach: managing waste and waste water, monitoring bathing water, protection of nature and awareness, and monitoring the marine and coastal resources of several sites, such as Gnejna Bay.

The initiatives introduced in Malta as regards awarding labels (Saint George Eco Hotel Baie being awarded the Blue Flag for at least one bathing area) also show the interest of such an approach, when supplementing efforts made in strategic analysis.

### **4.3.3. Integrating protected area carrying capacity within the Reception Capacity Evaluation (RCE) of tourist sites**

For several years now, the Reception Capacity Evaluation (RCE) concept has become one of the main techniques for planning and managing tourism and recreational activities<sup>57</sup>. The RCE is an instruction guide at the time when tourist plans at every level are being made. The RCE assesses a site's tourist development possibilities, bearing in mind its physical, biological, human, social, infrastructure etc. features. After an analysis, various scenarios are examined according to different tourist development options (in broad outline: free, intensive, alternative, sustainable).

Reception capacity as defined above takes all parameters into account, be they physical, human, economic, regulatory, including data on vegetation and wild fauna species ('typical' of the area under study), and the presence or absence of protected areas ('natural attractions').

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<sup>54</sup> UNEP/MAP (1987).

<sup>55</sup> <http://www.comite21.org/med/sommaire.htm>

<sup>56</sup> UNEP/MAP (2001).

<sup>57</sup> PAP/RAC (1997).

Data concerning the threats that hang over the resources is taken into account, including the degradation of natural and visual values. Finally, the whole set of local and national regulations, norms and decrees is integrated into the analysis, as is the study of the destination in relation to its wider environmental context (geographical assessment).

RCE gives tourist development planning a tool which, if correctly used and applied, and if all the necessary data is available for it to be elaborated, can be efficient. It therefore seems unnecessary to create supplementary assessment and control tools that are specific to habitats, biodiversity and protected areas; rather, a certain number of recommendations should be made and a certain number of additional parameters integrated within the RCE when the site is characterized and the scenarios are analysed according to the chosen development options (level of tourist development, development model related to the site's overall vulnerability).

The basic documents for the protected area (which concern the RCE) are the development plan and the management plan. The development plan is a document that describes the policy chosen for the park, its objectives, decision-making processes, and necessary actions to put the policy into effect. The management plan is the tool which describes how the park must be protected, used, developed and managed. It includes a variety of subjects (management plan for flora, for fauna, for fire-fighting, etc.) among which the tourist development plan defines those products that are to be made best use of and how to do this, carrying capacity (or the Limits of Acceptable Change – see § 4.6.4), and an analysis of possible impacts and how to mitigate these.

When these documents exist, the RCE must integrate protected areas, habitats, and species of flora and fauna as resources that all have their own constraints, and no longer in terms of products that simply have to be made best use of.

#### 4.4. Enforcing International Conventions

A great many International Conventions deal with protecting habitats, flora and wild animals. Most of the Mediterranean countries have ratified many of these Conventions and the strict enforcement of some of these should usually allow the impacts of tourist activity on biodiversity and habitats to be limited.

Thus, Article 6 Clause c<sup>58</sup> of the Bern Convention states that any intentional disturbance of wild animal species appearing in Annex II to the Convention, particularly during the period of reproduction, is forbidden, and that the Contracting Parties must take all legislative and statutory steps to guarantee their conservation.

This text thus clearly shows that for several species present in the Mediterranean, the monk seal, the green turtle and the loggerhead, and cetaceans, developing tourist activities in their respective breeding sites should be strictly forbidden. Tourist development of beaches where marine turtles lay their eggs must thus be strictly forbidden. As for 'watching' activities, these (in boats, with diving, etc.) for example should be strictly forbidden in the caves where monk seals reproduce, because of the extremely precarious status of the species. As for cetaceans, very strict rules, like those applied in the Canary Isles, should be enforced.

Not all the states in the areas surrounding the Mediterranean have signed and ratified the Bern Convention yet (cf. Annex 5.1). But the National Reports clearly show that some of the states that have signed it are behindhand in applying the corresponding regulations as regards protecting the monk seals' and marine turtles' reproduction sites.

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<sup>58</sup> 'Each Contracting Party takes the appropriate and necessary legislative and regulatory measures to ensure the particular conservation of the species of wild fauna listed in Annex II. For these species, (the following) in particular will be forbidden: ...The intentional disturbance of wild fauna, particularly during the period of reproduction, dependence or hibernation, so far as the disturbance has a significant effect in view of the objectives of the present Convention.'

## 4.5. Trans border cooperation

As they do for other areas of common interest, the Mediterranean countries must build up strong regional coordination in the field of tourism and the protection of habitats and of biodiversity. The Mediterranean states have all ratified various international conventions on biodiversity. All took part in the Barcelona Convention and many participated in the Convention on Biological Diversity and in the Convention on Wetlands.

It is crucial that participation in these Conventions finds expression on the ground by close trans-border collaboration to make sure that a balance is kept between development, particularly of tourism, and the protection of habitats and of biodiversity in trans-border areas of common interest. This is particularly so for estuaries and coastal wetlands where these are shared by two countries or when the rivers that run into these areas are on borders or traverse one and/or the other of the countries.

Trans-border cooperation programmes are already under way in some regions (Neretva delta between Bosnia-Herzegovina and Croatia; management of the waters of the Dragonja between Croatia and Slovenia; Integrated Coastal Management of the Amsheet/Latakia area between Lebanon and Syria). It is important that such initiatives be strengthened and developed.

This trans-border cooperation must be expressed in:

- the defining and promoting of management tools and operational tools for the national and local authorities, tools suited to the tourist development context and that of habitat protection and conservation of biodiversity in sites requiring trans-border management
- the enhancing of awareness by common action in the field and with sender countries ('two's better than one')
- the setting up of Mediterranean networks that permit the exchange of experience acquired in matters of trans-border cooperation in the field of tourism/the environment.

## 4.6. Preparing protected areas for tourism

### 4.6.1. Sustainable tourism, ecotourism or nature tourism?

Several National Reports defined the environmental impacts of tourism as being those of mass tourism. Today, according to the World Tourist Organization, the Mediterranean coasts welcome 220 million tourists and by 2020 this will have risen to 350 million. Tourist pressure is thus getting heavier in France, Italy and Spain, while other countries like Morocco, Tunisia, Greece, Turkey and Croatia are going to experience a massive rise in tourism.

Confronted by this mass tourism and the impacts identified on protected habitats, flora and fauna, variously-named programmes have been developed in several countries lying around the Mediterranean: integrated tourism on the Slovene coast in Slovenia, carefully-thought out coastal tourism in southern Albania, green tourism in the Cres-Losinj archipelago in Croatia, integrated management of the coastal areas in the Antalya region of the southern coast of Turkey, and ecotourism and whale-watching off the Balearic Islands in Spain. Several National Reports on the impacts of tourism on coastal and marine protected areas suggest developing different kinds of tourism, such as sustainable tourism, and others suggest ecotourism – without knowing precisely what is implied by the varied terminology.

### Ecotourism

If no universal definition of ecotourism exists, it is, however, possible to summarize its general features:

- ?? Ecotourism brings together all forms of tourism that focus on nature and where the main tourist motivation is observing and appreciating nature and the traditional cultures that flourish in the natural areas
- ?? One of its facets is education and interpretation
- ?? It is usually organised (though not solely) for small groups by local specialist enterprises. There are also foreign operators of various sizes which organise, run or market ecotourist tours, usually for little groups
- ?? Ecotourism has a limited negative impact on the natural and socio-cultural environment
- ?? It encourages the protection of natural areas:
  - by offering economic advantages to the receiver communities, bodies and administrations that ensure the protection of natural areas
  - by creating jobs and sources of income for local people
  - by making both residents of the country and tourists more aware of the need to protect the natural and cultural resources.

Ecotourism, when correctly planned, developed and managed, is thus not only an important factor of economic development – especially in isolated regions – but also a powerful tool for conservation of the natural environment. Here tourist products are designed to pay particular attention to nature in regions that have not been much disturbed by human beings. Ecotourism also implies, for both operators and customers, taking a responsible attitude to the place visited and showing respect for local cultures and sites, within a sustainable development perspective. But, often exploited as a mere marketing device, ecotourism has become an excuse for developing either very specialised products (discovery of fauna – ‘animal-watching’ tourism – or flora, at the expense of an overall ecological vision) or simplistic products (exploited simply as a new financial opportunity).

A new network, The International Network on the Sustainable Development of Coastal Tourism Destinations<sup>59</sup>, was set up in early 2003 on the initiative of the World Tourist Organization’s Sustainable Tourist Development Branch and with the scientific and technical collaboration of the Spanish National Distance Education University. This network aims at:

- compiling the information, experience and know-how produced by international organisations, national administrations, research institutes, experts, NGOs, etc. throughout the world as regards the sustainable development of coastal tourist destinations
- facilitating, via internet, the transfer of knowledge in this field
- acting as a provider of guidelines for those who would like to develop tourist policies and operations according to sustainability principles for coastal destinations
- stimulating cooperation and partnership between the members of the network.

An online International Knowledge Resources Guide allows people the world over to contact bodies, seaside resorts, etc. that have carried out operations, produced reports, etc. An International Good Practice Guide will soon be brought out by the programme.

### Sustainable tourism

Although recently used to convey various meanings, the term refers to anything touristic that has any relationship with the idea of sustainability as defined in 1992 at the Rio Earth Summit. The ‘sustainable’ concept is rather difficult to translate exactly from the English. This extension of the tourist concept took shape in 1995 during a conference held in Lanzarote (Canary Isles) by the World Tourist Organization (WTO); several hundred tourist partners took part, and a Charter for Sustainable Tourism was published. Sustainable tourism is thus defined as a way of managing ‘all the resources

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<sup>59</sup> <http://www.omt.uned.es/>

that allow economic, aesthetic and social needs to be satisfied and cultural integrity, ecosystems, biodiversity and life-supporting systems to be preserved.'

A clear distinction must be drawn between the ideas of ecotourism and sustainable tourism:

Sustainable tourism thus concerns any form of tourism, not only nature tourism, where the principles of sustainability must be applied to all types of tourist activity, operation, enterprise and project, both old and new. Sustainable tourism lays great stress on respect for people and their environment in the 'sustainability' of the tourist activity, without however mentioning their right to free expression and choice

Ecotourism, on the other hand, takes into account the object of the trip – nature and traditional cultures – which then become the driving force behind the marketing and must generate sources of income for local people. It should be noticed that this definition is still being evolved: at the World Ecotourism Summit, held in May 2002 in Quebec (Canada), great stress was laid on the human, supportive aspects inherent to this type of tourism.

### Nature tourism

Rural tourism, green tourism, country tourism, agrotourism, nature tourism, soft tourism – there is no lack of names to describe the varied practices of a single type of tourism that makes best use of the land. A wide definition borrowed from EUROTER 1993 could be taken as a reference: '(Nature) tourism is defined within the global tourist economy as the tourist valorizing of rustic areas, natural resources, the cultural heritage, rural dwellings, village traditions and local products via hallmark products that illustrate regional identity, cover the consumers' requirements as to accommodation, catering, leisure activities, organized events and various services, for the purposes of sustainable local development and a suitable answer to the leisure requirements of modern society, within a new spirit of town-country social solidarity. This definition favours the territorial approach to tourism rather than the purely economic one. It sets the land at the heart of tourist development.

Nature tourism and ecotourism are recognised as particularly enriching and valorizing forms of tourism when they take place within a spirit of respect for the natural heritage and the local people and satisfy the sites' reception capacity<sup>60</sup>.

## **4.6.2. Tourist Management Plan for a protected area**

A management plan for a protected area takes in a great variety of subjects, one of them being tourism.

The tourist management plan aims at planning: how can resources be developed? How diversified? How many visitors are wanted and what is the ceiling (according to the carrying capacity of the different sites in the protected area)? Which partners should be involved? What prices asked? What part of the management budget of the protected area will tourism bring in? How can the impacts of tourism be mitigated? etc.

## **4.6.3. Involving partners in developing tourist activities**

### **4.6.3.1. Integrating the protected area within the local and regional economy**

The creation and sustainable management of protected areas often entails the loss of property and activities for the landholders and local professionals (fishermen, farmers, etc.). But the economic balance sheet is incomplete unless the advantages, particularly financial, that accrue to the community in the form of direct or indirect effects (water and soil conservation, etc.), including those

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<sup>60</sup> World Code of Tourist Ethics – The General Assembly of the World Tourist Organization, Santiago, Chile, 1 October 1999.

generated by new activity, especially tourism, are integrated. If environmental, economic and social objectives are not integrated, conservation costs are artificially high, whereas the quality of the environment and conservation can henceforth become a real economic resource.

So, to give an example, several National Reports highlighted the damage caused by seals to fishermen's nets. Having these fishermen participate in the tourist development activities in a protected area (security, boat trips, etc. after training and approval) which contained an integral reserve for the protected of monk seals, could allow their loss of income to be offset, to a certain extent.

Thus, the local people and professionals would no longer be the often resentful observers of a protected area but would become partners.

#### 4.6.3.2. Identifying partners

Developing tourist activities in a protected area implies mobilizing a lot of partners whose interests are diverse and varied. Without the list being exhaustive, we could mention: staff in the protected area, visitors, local people, landowners, the administration, associations, local operators (fishermen, farmers, etc.), locals working in the tourist business (people running hotels and restaurants and small local tourist agencies), the tourist industry (tour operators, big hotel chains, etc.), transport staff, the media, etc.

Overall, these different partners may be broken down into 4 groups: local people, managers and staff in the protected area, people working in the tourist business, and tourists. Each group has different motives as regards aims and perspectives on tourist development in a protected area (Table 21):

Group	Motivation
Local people	Provide additional income and jobs Acquire foreign currency (for countries with low-value currency and high inflation) Help improve the quality of life Make best use of local cultural values and traditions
Managers and staff in the protected area	Promote conservation Generate income and reduce management costs Job creation Developing economic activity over the long term Fit the protected area into the local economy
People in the tourist business	Generate profits Develop new products Satisfy market demand
Tourists	Learn about nature and conservation Be active in conservation Take exercise and improve one's health Get to know about new cultural values and ways of life

Table 21: Protected areas and tourism – Partners' motives, taken from Eagles, Paul F. J., McCool, Stephen F., and Haynes, Christopher D. A. (2002), with additions.

Getting these various motives to dovetail with the principles of habitat protection and conservation of flora and fauna is the only way to develop balanced, non-intrusive, sustainable, environment-friendly

tourism in the protected areas. Correctly identifying partners, awareness and training for partners, having partners participate at various levels (workshops, board of directors, co-management, etc.) in decision-making about how to manage the protected area – all these make up a package of actions that will enable the protected area to be integrated within the local socio-economic fabric, the negative impacts of tourist activity to be lessened, and the partners themselves to self-monitor valorization activity, even, aware that they have a direct interest in conserving the quality of their products.

As is shown in Table 21, economic considerations are the driving force behind the integration of the protected area within the local fabric – especially for local residents. When the protected area employs staff from among the local people, dialogue with the local private sector is a prerequisite. One of the managers' tasks will be to show the economic profit the coastal people can derive from the existence of a protected area and from some forms of tourist valorization of flora and fauna as opposed to others. In the case of coastal and marine protected areas, dialogue with the fishing sector's corporate bodies is essential.

As regards fishing, for example, studies<sup>61</sup> have shown that setting up marine protected areas where fishing is prohibited allows fish stocks to be renewed and the surplus production to be exported to surrounding areas, to the direct advantage of the fishermen (reserve effect). Similarly<sup>62</sup>, studies have shown that catch that can be attributed to amateur fishing and underwater hunting is far from negligible, and that commercial fishermen have a direct economic interest in banning underwater hunting in protected areas. Underwater hunting may also be advantageously replaced by 'watching' diving: the value of a live grouper, for example, a focus of attraction for many divers, can bring in (overall: diving clubs, restaurants, hotels, businesses etc.) much more than the same grouper, dead, on a slab at the fishmonger's.

Where the marine and coastal areas are specifically concerned, attention should thus be paid to involving local fishermen (or fishermen's associations), carriers, small local tourist agencies, hotel keepers and restaurant owners, shopkeepers, local environment protection associations, local media, etc.

#### **4.6.3.3. Settling conflicts with and between partners**

It still remains that conflicts between managers and partners of the protected areas, and between the partners themselves, may arise as regards the aims and means of developing tourist activity in the protected area. These are generally of five kinds:

- conflict between managers and visitors: the manager will wish to limit the impacts of the visits on the flora and fauna, whereas the visitors will want to move into strictly protected areas or make the closest possible contact with the fauna to take photos
- conflict between visitors: tourists do not all share the same motives. It is not always easy to get bird-watching tourists and ramblers to coexist
- conflict between managers and people working in the tourist business, when these want to develop tourist products that the managers see as sources of disturbance for habitats, flora and fauna
- conflict between people working in the tourist business (especially if some are local and others 'from the tourist industry') when they both want to develop the same activity
- conflict between managers and the local people when protection and conservation action requires changes in traditional activities or behaviour.

Quite obviously, settling these conflicts is vital for ensuring the objectives of the protected area (protection and conservation) and those of the partners (generally speaking economic development) and thus integrating the protected area within the local economy. But settling conflicts is also vital for

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<sup>61</sup> Francour P. (1994).

<sup>62</sup> Boudouresque C.F. (1994).



enabling managers to control the tourist development of the protected area and thus avoid the appearance of environmental impacts due to unsupervised activity.

#### 4.6.3.4. Ecolabelling

In Malta, one of the objectives of the MAP CAMP Malta project is obtaining, within ten years of its programme being implemented, the Blue Flag for at least one of its bathing areas. This certification is the sign that its water is of good quality and is a very important marketing point for people working in the tourist industry. Indeed, many of today's tourists 'want their use of tourist facilities and their presence in tourist destinations not to spoil the resources they visit'<sup>63</sup>.

Another way of encouraging certain partners to reduce possible impacts on the environment is to encourage them to use ecolabelling programmes. Ecolabelling (a form of certification which is not restricted to the tourist sector alone) consists of providing consumers with a new element for comparing products, by means of granting an 'ecological label'. This is a voluntary approach on the part of tourist sector service providers (hotels, restaurants, transport companies, etc.) and consists of improving the environmental management of these providers' activities by identifying environmental impacts and ways of getting over them. These labels, which are costly to be used and managed, do however give tourist providers a real advantage over their rivals as regards their brand image for a certain European clientele. These labels are doubly interesting, therefore, for people working in the tourist business and for managers of nature areas and protected areas, by reducing impacts on the environment; financial partnerships with all the interested parties can be envisaged to back up the people working in the tourist industry in this approach.

Ecolabelling can also be applied to an entire local tourist destination with a view to protecting its natural, ecological, economic and cultural features and increasing the integration between people working in the tourist industry, local partners, local residents and the public administration<sup>64</sup>.

We must be honest. Little data exists on the environmental effect ecolabelling programmes have. The environmental advantages due simply to ecolabels being used are extremely difficult to isolate from the positive effects deriving from other environment policy measures. As a result, we comprehend the advantages of ecolabels indirectly. The indicators that reveal the efficacy of an ecolabelling programme are a consequence of changes in the behaviour of the provider and the consumer.

#### 4.6.4. Limits of Acceptable Change

Limits of Acceptable Change (LAC) are tools designed to assess the impacts of human activity that can be tolerated without having a significant impact on the ecological integrity, in other words, what change can be tolerated before the natural resources, a tourist product, or social conditions are affected.

The advantage LACs have over traditional carrying capacity that sets a threshold, is their greater dynamism, since alternative products can be identified during the approach and cost/profit analyses of alternative management options made. Furthermore, these tools also integrate the social dimension, which is quite obviously important as regards tourist impacts.

For further information on these tools, see the Bibliography<sup>65</sup>.

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<sup>63</sup> Font X. & Buckley R. (2001).

<sup>64</sup> For further information, consult the European Commission site on the subject: [http://europa.eu.int/comm/environment/ecolabel/producers/pg\\_tourism.htm](http://europa.eu.int/comm/environment/ecolabel/producers/pg_tourism.htm)

<sup>65</sup> Stankey, G. H. and McCool, S. F. (1992); McCool, S. F. (1994) and [http://nexus.srn.arizona.edu/-gimblett/lec9\\_rec.html](http://nexus.srn.arizona.edu/-gimblett/lec9_rec.html).

#### 4.6.5. Human resources and personnel training

Staff costs are usually one of the biggest items in the management budget. But a suitably recruited and trained team is a guarantee of the integrity of the protected area. This holds good for the staff assigned to tourist valorization activity.

As far as possible, some of the staff should be recruited locally. Local recruitment enables the knowledge of the men and women living in the region to be put to good use, and must improve the protected area's integration within its local socio-economic context. The protected area's management plan must plan for the increase of tourist frequentation during the high season to allow temporary staff to be recruited over this period.

Staff training is a vital point. Regarding the supervision of tourist activities, staff must attend training programmes in the following fields:

- relations with tourists
- small traders
- environmental education
- conflict settling
- monitoring and enforcing the rules.

#### 4.6.6. Monitoring tourist activities

Monitoring is an essential element in the process of managing a protected area, whether this is done to assess how far the aims set are being attained, or to estimate the impacts of activities on the natural and human environment. Monitoring consists of measuring a certain number of key physical, biological and social indicators at regular intervals.

Two kinds of monitoring of tourist activity can be done:

- monitoring the environmental and social impacts that are likely to affect the level of habitat protection, conservation of flora and fauna, and acceptability of the protected area within its economic and social context; all the impacts that directly, in the shorter or longer term, affect the level of frequenting by the public – and thus the income generated for the protected area and the local people
- monitoring the quality of products and services, since any drop in quality automatically causes fewer people to come to the protected area and thus a drop in the income generated for the protected area and the local people.

Designing a programme to monitor the impacts of tourism on a protected area is not very complicated to do<sup>66</sup>:

1. Identify the impacts and indicators to be monitored
2. Select measuring methods
3. Identify the limits or extent of the Limits of Acceptable Change
4. Develop an operational monitoring plan
5. Train staff
6. Start monitoring and study data
7. Assess the monitoring programme and make possible decisions.

Each protected area has its own specific features and it is quite impossible to give precise indications about monitoring indicators. But we can offer criteria for choosing 'good' indicators. An indicator must be:

- measurable with the available technical means in the protected area, or with means that can be easily obtained
- precise, i.e. measuring it can be done with a minimum degree of reliability

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<sup>66</sup> From Rome Abigail (1999).

- uniform, i.e. a single indicator measured in the same conditions must give the same results
- sensitive, i.e. it can register any change in the environment for which it is being measured
- exact, i.e. its measurement must not give rise to any opposition
- useful, i.e. it has a degree of relationship to the tourist activity being monitored
- economical, i.e. the cost of collecting and analysing it must not be prohibitive.

#### 4.6.7. Income of the protected area

Protected areas frequently suffer from a lack of financial means to implement development and management plans. The public finances are often unable to provide the necessary funds. The protected areas sometimes enjoy outside funding from international backers or donors (NGOs), but this funding is usually intended for investment (infrastructure, equipment) and not everyday management. In these conditions, asking people to pay to enter a protected area is a way of obtaining working capital for running costs. But it is illusory to think that admissions alone can fund the whole management costs of protected areas, especially staff wages.

Usually a European public does not understand why it should be made to pay to enter a National Park, for it considers it normal that 'nature property' should be freely placed at its disposal. While the same public is prepared to pay for admission to a zoo to look at animals in cages, it is not ready to pay to visit the Port-Cros National Park in France! The situation is completely different in the United States, Australia and many other countries where admission to protected areas is strictly controlled and one has to pay to get in.

Conversely, experience shows that tourists often hold sites in higher esteem when they pay to visit them. But the 'product' must be worth the entrance fee and the visitor must be aware both that s/he is 'buying' a quality service or product, and that most of what s/he pays will go directly to improving the conservation of natural resources and fitting out the protected area and not into the taxman's pocket.

Obviously, if the entrance fee to a protected area is high and represents a sizeable part of the overall cost of the trip, the price will be dissuasive. Also, a high price can result in tourists from the 'northern countries' who can pay the entrance fee being 'segregated' from local visitors who cannot.

Pricing policy also constitutes a way of partially regulating the flow of visitors to protected areas. High prices may be charged during the tourist periods (weekends, holidays) and lower prices out of season and during the week (cf. Table 23, § 4.6.8.4). This pricing policy (admission, vehicles, boats, guides, etc.) must be an integral part of the protected area's management plan, just as the necessary infrastructure (access, car park, checkpoints, closing other possible entrances, etc.) must be part of the development plan.

Pricing policy must be designed to cover a great diversity of activities and thus of target publics:

Price	Description
Entrance fee	Admission of pedestrians, vehicles, boats
Various admission charges	Shows, admission to conference centres, etc.
Taxes and fees for tourists	Tourism tax, fees for the car park, camp site, mooring, diving etc.
Concession duty	'Rent' paid back by concessionaires providing services within the protected area (grocers, restaurants, hotels, various rental bodies, etc.)
Sale of products	Detailed maps, souvenirs, books, posters, etc.
Subscriptions	Subscriptions to reviews brought out by the protected area, membership of a 'Friends of the

	protected area' association
Various licences, permits and taxes for professionals	Entrance fees for tour operators operating within the protected area without calling on the services of the official guides Taxes encouraging hotel keepers, restaurant owners etc. to pollute less <sup>67</sup>
Taxes	Hotels, airports, etc.

Table 22: Protected areas and tourism – Activities and prices, taken from Eagles, Paul F. J., McCool, Stephen F. and Haynes, Christopher D. A. (2002, with additions)

Different entrance prices can be offered to foreign tourists and residents; according to age, etc. Competitively priced 'passes' may be offered for several neighbouring protected areas that combine coastal protected sites, cultural sites, protected forests, etc. Joint formulae (transport, entrance fee, etc.) can be suggested with local hotels.

Managers of Mediterranean marine and coastal protected areas must ask themselves two main questions before deciding on their pricing policy:

- What are the objectives of the pricing strategy? The answer to this question requires a good knowledge of who the visitors to the protected area will be
- What prices are suggested for this or that specific 'product' in accordance with this strategy?

In this way, the same pricing policy will not be drawn up for managing the El Kala National Park (where international tourism is not sizeable) and for managing a marine protected area where the sea bed, of great international renown, attracts many foreign divers.

#### 4.6.8. Managing the flow of visitors

##### 4.6.8.1. Protected area and protection

Tourists see in the name 'National Park' or 'Reserve' a guarantee of the remarkable character and quality of the site and of its biodiversity, and of a certain peace and calm, since access to the site is, in theory, regulated. The presence of a protected area thus become a selling point for travel agencies, the destination acquiring higher market value in this way. So many sites are very little visited by tourists, while others – with better access conditions, better accommodation infrastructure or quite simply better marketing – are swamped. Listing a site as a protected area without giving it the means to ensure the appropriate management is not thus directly synonymous with protecting the habitats, flora and fauna it is supposed to protect, especially in tourist areas, particularly littoral environments. This is a particularly perverse and dangerous mechanism, because non-management of attractive protected areas may pose a direct threat to habitats and biodiversity. Creating a protected area 'on paper' may sometimes be more harmful than doing nothing at all.

Since tourists are increasingly interested in protected sites, there is an increase of the flow of tourists to these protected areas. This is particularly so when there is a strong linkage between (sometimes mass) tourist areas and sites that are covered by protection measures on a variety of bases. Many National Reports mention this problem. Without a prior study on protected area/tourism integration, without the appropriate means, especially in the tourist season, the results obtained may well be exactly the opposite of what was hoped. This situation is increasingly frequent and many examples are given, particularly in Turkey<sup>68</sup>, where visits are offered to the marine caves where the monk seals live, an activity that is forbidden by the Bern Convention.

<sup>67</sup> But finding mechanisms that allow all 'merchandization' of pollution rights to be avoided, the professionals often prefer to buy a right to pollute, which costs them less than implementing pollution reduction techniques.

<sup>68</sup> Many websites like <http://www.bridgetourism.com/dilekpeninsulaweb.htm> mention the possibility of freely visiting the underwater caves within the Dilek Peninsula National Park near Kusadasi in Turkey.

#### **4.6.8.2. Spatial and temporal organisation of sensitive tourist sites**

One of the difficulties of tourist valorization of the natural environments of the Mediterranean coasts is that the tourism is concentrated in a very small number of months (July/August, or even June to September) because of the proximity of the sender countries (unlike more distant destinations, particularly the tropical regions, where tourism is staggered more regularly over the year), because this corresponds to the holidays of tourists from western and northern Europe, and because of the temperature of the sea water during these months<sup>69</sup>.

The paradox is thus that the situation is often one where the peak tourist period coincides with the biodiversity hot spots and the reproductive periods of the most emblematic species, like the monk seal. The 'peaceful' coexistence of this group of elements is not easy, and must be examined case by case. It is thus important to reflect on the mechanisms that could enable the tourist flow to be regulated as regards both time and space.

Sometimes, ecologically speaking, it would be in our interest to diversify the sites that can be visited to lessen the impact, for example, of 'watching' tourism. In other cases, some sites can be given priority because of their surface area, possibility of reception facilities and facilities for 'diluting' the visitors over various areas, etc., and visits to other sites would then be forbidden. Certain sites could be opened at certain periods and shut at others. This implies creating the appropriate regulations, enforcing these by having a sufficient number of staff, physical means, and information and awareness tools. These two last points are vital to explain why certain sites are shut. This is essential if tourists are to accept visiting bans.

When the protected area has development and management plans, these restrictions must be integrated within the protected area's tourist development plan. When it does not have these, appropriate regulations must be prepared and approved by the competent authorities.

#### **4.6.8.3. Sites closed to tourism**

It has been seen (§ 4.2) that some sites must be excluded from the programmes and plans for the tourist valorization of natural resources. These are the sites and protected areas where any activity, and particularly tourism, is likely to cause disturbance.

Since the monk seal is a species that is threatened with extinction, tourist development plans must therefore rule out any development of tourist activities in and near the sites where this species reproduces, and in particular forbid any seal-watching activity. These habitats should receive Integral Reserve-type listing measures (with the appropriate means) to guarantee the sites' integrity. Ideally, tourism should also be banned in potential reproduction sites (and/or those where monk seals were present in a recent past) in order to recreate the optimal conditions for the monk seals to return to these habitats. Thus, Galiton in the west of the La Galite archipelago in Tunisia has since July 1980, by Decree of the Ministry of Agriculture, been listed as an Integral Nature Reserve, and a programme of video monitoring of habitats is being envisaged in order to detect any return of the seals. Such a video system, on show in an interpretation centre, can also constitute a tourist product that can be made best use of without any disturbance being caused to the species.

Also ideally, all marine turtle nesting sites should be excluded from tourist areas. Many beaches, formerly used by turtles, have already been made best use of for tourism and it is to be hoped that coastal tourist development plans bear the conservation dimension in mind in their programming.

#### **4.6.8.4. Examples of restrictions**

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<sup>69</sup> Usually tourists only bathe when the water temperature has reached 20°C.

Managing the flow of visitors to limit environmental impacts and achieve a better conservation/valorization balance is an important element of the plan to manage and regulate the protected area. Various types of spatial and temporal restriction can be put into effect according to the features of the environment, the periods when the fauna is active, etc. Other arrangements can discourage visitors who do not satisfy certain conditions (cf. Table 23).

<b>Strategy</b>	<b>Restriction</b>
Restrictions on the entire protected area	Limit the number of admissions Limit the length of visit/stay Regulate movement Manage opening times Encourage visiting of other sites Make access to certain sites difficult Require the holding of a permit or qualifications for certain activities (e.g. diving) Make the presence of a guide compulsory Require certificates of competency for guides from outside (e.g. tour operators) Make certain equipment compulsory
Restrictions on fragile areas	Inform visitors about fragile areas and alternative areas Discourage or forbid visits to fragile areas Limit the number of visitors to fragile areas Limit the length of visit for fragile areas Make access to fragile areas more difficult Open certain areas and shut others Only permit camping in special areas Only permit camping a certain distance from streams Require certain equipment Introduce a differential range of entrance fees
Managing visiting periods and times	Encourage visits outside peak periods Forbid visits during periods of high potential impact Reduce duration of visits Reduce duration of parking in certain sites Prevent private vehicles having access by preventing parking and organising access by public/private carriers Introduce high prices during peak periods
Changing visitors' behaviour	Discourage/ban the practice of certain harmful activities Make visitors aware of their behaviour (distribute documents, compulsory viewing of a film before admission, etc.) Organise group visits Reduce the size of the groups Discourage/ban the admission of pet animals Discourage/ban camping Make use of toilets compulsory Oblige visitors to carry first aid material Forbid the use of fire Only permit the use of fire in certain places adapted for this Forbid the collection of dead wood for fires Oblige visitors to pick up their waste Discourage/ban overnight stays or stays of more than X nights

Table 23: Protected areas and tourism – Strategies for restrictions on visiting, taken from Eagles, Paul F. J., McCool, Stephen F. and Haynes, Christopher D. A. (2002, with additions).

Restrictions on visiting are not always taken badly by tourists. Well-applied regulations are synonymous with correct management and thus reinforce the interest of the visit. But for these restrictions to be understood, visitors must be well informed about them in the agencies, hotels, restaurants etc. so that they do not make fruitless journeys.

#### **4.6.9. Marketing and information**

Information for people working in the tourist business and for visitors, as well as helping towards a long-term education, is a must to reduce the impacts of tourist activity on habitats and species.

##### **4.6.9.1. At local level**

Informing visitors and local people working in the tourist business aims at many things:

- encouraging behaviour that minimises negative environmental impacts and maximises positive impacts
- providing information on management policy for the protected area
- creating good relations between local professionals and the public on the one hand, and the national agency responsible for nature protection and/or conservation of biodiversity on the other
- developing a positive attitude between local professionals and the public and the protected area staff (managers, guides, wardens, etc.)
- developing awareness and an understanding of the aims of conservation
- satisfying the professionals and the tourists.

Various techniques and different tools may be used to sensitize and inform the public and the professionals:

- providing information at the entrance to the protected area via boards, brochures that are handed out, or the compulsory viewing of a video cassette before admission
- inform by panels bearing explanatory material in the most fragile sites of the protected area
- provide direct information through the staff, particularly the guides
- provide brochures for people working in tourism (restaurants, hotels, transport operators) and travel agencies
- organise information and awareness sessions for the local people, which, as well as sensitizing and informing one of the protected area's main partners, can back up visitor information
- with the support of the local communities, open information agencies in the towns and/or seaside resorts that lie around the protected area, with leaflets on offer
- organise conferences in the neighbouring seaside resorts at the height of the tourist seasons.

##### **4.6.9.2. At international level**

Sensitizing and informing the people who work in the tourist business internationally is also an effective way of minimising negative environmental impacts (natural and human). Tour operators in northern and western Europe, often with links with local professionals, can thus in part determine the 'quality' of the visitors.

Most 'mass' tour operators display brochures which present the Mediterranean coasts as 'sun, sea and sex' destinations; protected nature and fauna only appear as proof of cleanliness and peacefulness. Sometimes self-regulation is mentioned as a way of reducing the impacts of tourist activity, since the tourist industry itself has an interest in protecting the environment and thus the 'products' it sells. But since environmental impacts and profits from tourism appreciate according to different time-scales (short- and/or medium-term for income from tourism, medium- and/or long-term for environmental impacts), this self-regulation is often a pious hope, unless some of the environment protection activities allow private profits to rise.



However, for a certain amount of time some tour operators and publishers of guidebooks and tourist magazines have been working to improve tourist attitudes and behaviour. With the support of a consultant from the Ecotourism Society association, they elaborated a Traveller's Charter of Ethics (cf. Annex 5.3), which contains a host of recommendations about 'correctly practiced' tourism to avoid harmful consequences for people and natural areas.

Other codes of good conduct regarding tourism and the environment have been brought out by various organisations, either in the tourist sector or that of the environment. In 2000, the WWF (as part of the WWF Programme for the Mediterranean) published a guidebook<sup>70</sup> which produced a synthesis of principles for tourism in the Mediterranean, presented two codes of good conduct – one for tourists, the other for the tourist industry sector (tour operators, hotels, airline companies) – and made recommendations for local authorities. Here are the ten principles for sustainable tourism in the Mediterranean, as proposed by the WWF:

1. Support integration between tourist development and environment conservation
2. Support the conservation of biodiversity
3. Use natural resources in a sustainable way
4. Reduce consumption, waste and pollution to the strict minimum
5. Take local and traditional cultures and behaviour into account
6. Respect historical sites
7. Provide advantages to the local communities
8. Educate and train staff to support sustainable tourism
9. Make sure that tourism is educational
10. Abide by the rules

Other initiatives can be highlighted, such as that of the BBC's internet site (BBCi h2g2 – The Earth Edition of The Hitchhiker's Guide to the Galaxy). This is a discussion site which under 'travel' presents an article on the Siren Rocks in Foça, Turkey<sup>71</sup>, an important monk seal reproduction site. The text says about the monk seals that only 500 to 600 are left in the whole world and ends: 'If you do spot them, either keep your distance or run the other way!'

There are many other good practices and initiatives, such as the Bonifacio Atoll Diving Center in Corsica (France) which posts on its website<sup>72</sup>, as well as a presentation of the Bouches de Bonifacio International Marine Park (with a map of the various regulated areas) some information on 'good behaviour' for divers:

#### Recommended behaviour

You are entering a sensitive, fragile universe. Respect it.

When mooring your boat, accompany the anchor right down to the bottom and check that it is not causing any harm to the fixed fauna and the flora.

Carry a maximum five people.

Before diving, make sure your ballasting and your stabilizing equipment allow you to move along without touching the seabed and the fauna fixed on the rocks and without making sudden movements.

If by chance you enter a cave or an overhang, avoid making bubbles accumulate on the ceiling, because these cause the death of all the organisms living there.

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<sup>70</sup> BORELLI Simone, MINISTRINI Stefania & GUARRERA Luigi. (2000).

<sup>71</sup> The Siren Rocks, written about in Homer's Odyssey, were, according to legend, the home of some rather eccentric ladies, after whom the rocks were named. Sirens - half-bird, half-human, female creatures - were said to sing with such beautiful voices that passing sailors who heard them were lured to drive their ships crashing straight onto the rocks. Invariably the ships sank and the sailors drowned... The island where the Siren Rocks are situated (Foça SPA) is also home to a very rare species of seal called the Mediterranean Monk Seal. These seals have been rated among the five most endangered species on earth, so be very careful not to disturb them in any way. There are about 500-600 of them left in the whole world, so if you do spot them, either **keep your distance or run the other way!**: <http://www.bbc.co.uk/dna/h2g2/alabaster/A676172> ).

<sup>72</sup> <http://www.atoll-diving.com/index.htm>

Photographers, night divers – don't misuse artificial lighting.

Don't try to stroke or touch the fish, crustaceans, shellfish and worms you meet; be content to admire them.

Don't feed the fish.

To weight anchor, make use of a rising parachute which will stop it trailing along the seabed.

It is thus vital to inform the people who work in the tourist business in the sender countries; an important effort must be made by the authorities responsible for tourism and the environment in the countries bordering on the Mediterranean to circulate information to tour operators and others in the tourist business and encourage these in their turn to do the same for the tourists.

# **ANNEXES**



## 5.1. The Bern Convention – Chart of Signatures and Ratifications

### Bern Convention on the Conservation of European Wildlife and Natural Habitats

#### Signatures and Ratifications

Status as of 25/02/03

States	Member States of the Council of Europe	Date of signature	Date of ratification	Date of entry into force	Renv.	R.	D.	A.	T.	C.	O.
Albania	X	31/10/1995	13/01/1999	01/05/1999							
Algeria				Observer							
Bosnia-Herzegovina	X			Observer							
Cyprus	X	21/10/1981	16/05/1988	01/09/1988		X					
Croatia	X	03/11/1999	03/07/2000	01/11/2000		X					
Egypt											
Spain	X	19/09/1979	27/05/1986	01/09/1986		X					
France	X	19/09/1979	26/04/1990	01/08/1990		X					X
Greece	X	19/09/1979	13/06/1983	01/10/1983							X
Israel											
Italy	X	19/09/1979	11/02/1982	01/06/1982							
Lebanon											
Libya											
Malta	X	26/11/1993	26/11/1993	01/03/1994		X					X
Morocco			25/04/01 a	01/08/2001							
Monaco			07/02/94 a	01/06/1994							
Slovenia	X	20/10/1998	29/09/1999	01/01/2000		X					
Syria											
Tunisia			12/01/96 a	01/05/1996		X					
Turkey	X	19/09/1979	02/05/1984	01/09/1984		X					X
<b>Postponements</b> :											

a: Accession - s: Signing without reservation as to ratification- su: Succession - r: Signature "ad referendum".

R.: Reservations – D.: Declarations - A.: Authorities - T.: Territorial Application - C.: Communication - O.: Objection

Source: Council of Europe – Treaty Office: <http://conventions.coe.int>

## 5.2. Scientific Names of Cited Species

(Common names are in alphabetical order)

<b>Mammals</b>
African wildcat? <i>Felis libyca</i>
Barbary ape <i>Macaca sylvanus</i>
Barbary deer <i>Cervus elaphus barbarus</i>
Bent-winged bat <i>Miniopterus schreibersi</i>
Boar <i>Sus scrofa</i>
Bottlenose dolphin <i>Tursiops truncatus</i>
Brown bear <i>Ursus arctos</i>
Caracal lynx <i>Felis caracal</i>
Common dolphin <i>Delphinus delphis</i>
Common genet <i>Genetta genetta</i>
Cyprus white-toothed shrew <i>Crocidura cypria</i>
European otter <i>Lutra lutra</i>
(European) Badger <i>Meles meles</i>
False killer whale <i>Pseudorca crassidens</i>
Fox <i>Vulpes vulpes</i>
Golden jackal <i>Canis aureus</i>
Ichneumon mongoose <i>Herpestes ichneumon</i>
Killer whale <i>Orcinus orca</i>
Lon-eared hedgehog <i>Hemiechinus auritus</i>
Long-finned pilot whale <i>Globicephala melas</i>
Monk seal <i>Monachus monachus</i>
(Northern) Long-eared bat <i>Myotis emarginatus</i>
Polecat <i>Mustela putorius</i>
Porcupine <i>Hystrix cristata</i>
Rhinolophus <i>blasii</i>
Roe-deer <i>Capreolus capreolus</i>
Serval <i>Felis serval</i>
Sperm whale <i>Physeter catodon</i>
Spotted hyena <i>Crocuta crocuta</i>
Striped dolphin <i>Stenella coeruleoalba</i>
Weasel <i>Mustella nivalis</i>

Wild cat <i>Felis silvestris</i>
Wolf <i>Canis lupus</i>
<b>Birds</b>
Algerian nuthatch <i>Sitta ledanti</i>
Audouin's gull <i>Larus audouini</i>
Balearic shearwater <i>Puffinus (yelkouan) mauretanicus</i>
Barbary (Peregrine) falcon <i>Falco peregrinus</i>
Barn owl <i>Tyto alba</i>
Black stork <i>Ciconia nigra</i>
Black tern <i>Chlidonias niger</i>
Black-crowned night heron <i>Nycticorax nycticorax</i>
Black-eared wheatear <i>Oenanthe hispanica</i>
Black-winged stilt <i>Himantopus himantopus</i>
Blue rock thrush <i>Monticola solitarius</i>
Bluethroat <i>Luscinia svecica</i>
Bonelli's eagle <i>Hieraetus fasciatus</i>
Booted eagle <i>Hieraetus pennatus</i>
British storm petrel <i>Hydrobates pelagicus</i>
Caspian tern <i>Hydroprogne caspia</i>
Collared pranticole <i>Glareola pratincola</i>
Common buzzard <i>Buteo buteo</i>
Common crane <i>Grus grus</i>
Common pochard <i>Aythya ferina</i>
Common shelduck <i>Tadorna tadorna</i>
Common tern <i>Sterna hirundo</i>
Comon scops owl <i>Otus scops</i>
Cory's shearwater <i>Calonectris diomedea</i>
Dalmatian pelican <i>Pelecanus crispus</i>
Dartford warbler <i>Sylvia undata</i>
Desmarest's shag? <i>Phalacrocorax aristotelis desmarestii</i>
Eagle owl <i>Bubo bubo</i>
Egyptian vulture <i>Neophron percnopterus</i>
Eleonora's falcon <i>Falco eleonora</i>
Eurasian coot <i>Fulica atra</i>
Eurasian jackdaw <i>Corvus monedula soemmerringii</i>
Eurasian kestrel <i>Falco tinnunculus</i>

Eurasian wigeon <i>Anas penelope</i>
European sparrow hawk <i>Accipiter nisus</i>
Ferruginous pochard <i>Aythya nyroca</i>
Glossy ibis <i>Plegadis falcinellus</i>
Golden eagle <i>Aquila chrysaetos</i>
Golden oriole <i>Oriolus oriolus</i>
Great bittern <i>Botaurus stellaris</i>
Great cormorant <i>Phalacrocorax carbo</i>
Great crested grebe <i>Podiceps cristatus</i>
Great spotted woodpecker <i>Dendrocopus major</i>
Greater flamingo <i>Phoenicopterus ruber</i>
Green wood-pecker <i>Picus viridis</i>
Griffon vulture <i>Gyps fulvus</i>
Gull-billed tern <i>Sterna (Gelochelidon) nilotica</i>
Honey buzzard <i>Pernis apivorus</i>
Lanner <i>Falco biarmicus</i>
Lesser kestrel <i>Falco naumanni</i>
Little bittern <i>Ixobrychus minutus</i>
Little bustard <i>Tetrax tetrax</i>
Little tern <i>Sterna albifrons</i>
Long-eared owl <i>Asio otus</i>
Long-legged buzzard <i>Buteo rufinus cirtensis</i>
Marbled teal <i>Marmaronetta (Anas) angustirostris</i>
Northern hobby <i>Falco subbuteo</i>
Northern pintail <i>Anas acuta</i>
Osprey <i>Pandion haliaetus</i>
Pallid harrier <i>Circus macrourus</i>
Peregrine falcon <i>Falco peregrinus brookei</i>
Purple heron <i>Ardea purpurea</i>
Purple swamphen <i>Porphyrio p. porphyrio</i>
Pygmy cormorant <i>Phalacrocorax pygmeus</i>
Red kite <i>Milvus milvus</i>
Rock dove <i>Columba livia</i>
Rock nuthatch <i>Sitta neumayer</i>
Ruff <i>Philomachus pugnax</i>
Sedge warbler <i>Acrocephalus schoenobaenus</i>



Short-eared owl <i>Asio flammeus</i>
Short-toed eagle <i>Circaetus gallicus</i>
Short-toed lark <i>Calandrella brachydactyla</i>
Slender-billed curlew <i>Numenius tenuirostris</i>
Slender-billed gull <i>Larus genei</i>
Small buttonquail <i>Turnix sylvatica sylvatica</i> )
Spectacled warbler <i>Sylvia conspicillata</i>
Squacco heron <i>Ardeola ralloides</i>
Stonecurlew <i>Burhinus oedicephalus</i>
Tawny owl <i>Strix aluco</i>
Western marsh harrier <i>Circus aeruginosus</i>
White spoonbill <i>Platalea leucorodia</i>
White wagtail <i>Motacilla alba</i>
White-headed duck <i>Oxyura leucocephala</i>
White-tailed (sea) eagle <i>Haliaeetus albicilla</i>
Yellow-legged gull <i>Larus michahellis</i>
<b>Reptiles</b>
<i>Acanthodactylus blanci</i>
Chameleon <i>Chamaeleo chamaeleon</i>
Loggerhead turtle <i>Caretta caretta</i>
<i>Emys orbicularis occidentalis</i>
<i>Discoglossus sardus</i>
Warty gecko <i>Hemidactylus turcicus</i>
Dalmatian wall lizard <i>Podarcis melisellensis</i>
Sicilian lizard <i>Podarcis sicula</i>
<i>Phyllodactylus europaeus</i>
<i>Pleurodeles poireti</i>
Spotted salamander <i>Salamandra atra</i>
Seps <i>Chalcides parallelus</i>
Seps <i>Chalcides mauritanicus</i>
<i>Testudo graeca</i>
Green turtle <i>Chelonia mydas</i>
<b>Batrachians</b>
(Green) tree frog <i>Hyla arborea</i> ssp. Savignie
Green toad <i>Rana (bufo) viridis</i>

Rana ridibunda
<b>Fish</b>
Common Dentex Dentex dentex
Corfu toothcarp ? Valencia hispanica
Corsican toothcarp? Aphanius fasciatus
Dusky grouper Epinephelus guaza
Dusky grouper Epinephelus marginatus
European eel Anguilla anguilla
European sea bass Dicentrarchus labrax
Flathead grey mullet Mugil cephalus
Gilthead sea bream Sparus aurata
Greater amberjack Seriola dumerelii
John Dory Zeus faber
Long-snouted sea horse? Hippocampus ramulosus ; H. guttulatus
Mediterranean moray Muraena helena
Short-snouted sea horse Hippocampus hippocampus
Spanish toothcarp Aphanius iberus
Striped mullet Mullus barbatus
Thick-lipped grey mullet Mugil chelo
<b>Other marine organisms</b>
<u>Shellfish</u>
Black limpet Patella nigra
Date-shell Lithofaga lithofaga
Erosaria spurca
Ferrous limpet Patella ferruginea
Gibbule neigeuse Gibbula nivosa
Great mediterranean scallop Pecten jacobaeus
Helmet ton Tonna galea
Knobbed triton Charonia lampas rubicunda
Knobby triton Charonia nodifera
Lurida lurida
Noah's ark Arca noae
Noble pen shell Pinna nobilis
Zonaria pyrum

<u>Sponges</u>
Asbestopluma hypogea
Hippospongia communis
Opsacas minuta
<u>Cnidaria</u>
Black coral Gerardia savaglia
Red coral (Sardinia coral) Corallium rubrum
Madrepore Astroides calycularis
Cladocora caespitosa
<u>Echinodermata</u>
Sea urchin Centrostephanus longispinus
<u>Crustaceans</u>
Brine shrimp Artemia salina
Fairy shrimp Branchipus visnyai
Common shrimp Crangon crangon
Spinous spider crab Maja squinado
Common spiny lobster Palinurus elephas
Triops cancriformis
Invertebrates
Spirographis spallanzanii
<b>Land flora</b>
Aleppo pine Pinus halepensis
Arborescent euphorbia Euphorbia dendroides
Brechypodium ramosum
Calystegia soldanella
Cork oak Quercus suber
Cressa cretica
Euphorbia Euphorbia pithyusa
Evergreen oak Quercus ilex
Fan palm Chamaerops humilis
Horned poppy Glaucium flavum
Olive tree Olea oleaster

Pinaster <i>Pinus pinaster</i>
Southern Marram Grass <i>Ammophila australis</i>
<b>Marine flora (flowering plants and algae)</b>
Carpobrotus sp.
Chalk weed <i>Phymatolithon calcareum</i>
Cystoseira <i>Cystoseira amentacea</i>
Cystoseira <i>Cystoseira stricta</i>
Dwarf eel grass <i>Zostera noltii</i>
Green sea palm <i>Caulerpa taxifolia</i>
Posidonia <i>Posidonia oceanica</i>
Sea daffodil <i>Pancratium maritimum</i>
Sea nymph <i>Cymodocea nodosa</i>

### 5.3. The Traveller's Code of Ethics®

Two worlds come together every time someone travels from one country to another. We are travellers, tourists and discoverers turn by turn. However we undoubtedly are always guests. The countries that we take so much pleasure in visiting host us. All the happiness one may derive from a trip may rest on this relationship, which happens to be quite delicate sometimes.

There are many ways of travelling, of perceiving different environments, but we inevitably leave marks of our passage behind us. These may be warm, generous, subdued, as they may be dangerous and permanent sometimes. We learn a little more with every new travel. Each region is different, yet we are always confronted with the same questions, and doubts, as we are confronted with our own certainties.

Our wish was to include in a TRAVELLER'S CODE OF ETHICS what looked to us to be the most representative behavioural patterns or attitudes to be encouraged. Learning to discover cultures and refrain from judging them, trusting one's good sense and bearing in mind some pieces of advice, this is what, in our eyes, helps make our travel pleasant while securing the sustainable development of our planet.

#### **Respect is the guarantee of a better way of meeting other people**

One of the attractive aspects of travel lies in the diversity of the people and cultures we come across. But then every culture, every religion and every way of life abides by rules and traditions that should be respected and understood, rather than judged. Travel cannot be envisaged without respect and humility towards the people, the property, the culture and the way life of the visited countries. This respect is expressed in simple, daily attitudes.

Every country lives at its own pace. In some case haste and impatience may not be the best way to enlist author people's sympathy.

- ?? Clothes that are tight fitting, too ostentatious, or too casual, or that leave much of the body bare may be shocking in some climes. The same goes for body contact codes (caressing a child's hair, a man shaking a woman's hand, sitting beside a woman, kissing in public, etc.).
- ?? A good photograph is taken with the consent, not against the will, of its subject. There is everything to be gained for photographers from taking time to build confidence, asking for (the parents') permission to film or take a photo (of children) and comply with possible refusal.
- ?? Preferably, one should only promise to send photos to the people on the photographs when one is certain to be able to keep one's promise (even in the case of compensation or reward being asked for).
- ?? Abiding by recommended vaccinations helps avoid introducing diseases in the visited country. It is important to comply with WHO recommendations in using treatment against malaria: the use of bigger doses may expose the local population to the risk of increasing the resistance of the strain of bacteria present in the country.
- ?? Sexual tourism is a violation of human dignity forbidden by law. It does not look like prostitution at first. There are many examples of travellers coming back from one country or another filled with wonder at the "sexual liberty" (!) they had seen among its inhabitants, without even realizing that the only reason for the existence of such "liberty" is the prevailing poverty.

## **Money, property, and food do not have the same value everywhere**

Discrepancy between the traveller's standard of living and that of the host country's population may result in misunderstandings and relational failures. In some cases, welcoming someone may involve great sacrifices for a family or a village community. What the traveller is offered, as well as what he gives, must be measured by local standards.

Giving presents and gifts is no innocuous move. Such acts of giving may express a condescending, scornful or inappropriate attitude (like throwing coins or sweets to children to get rid of them, etc.). Presents, gifts and tips whose value is excessive by local living standards may destabilise local economic balances. Children who make money out of tourists from posing for photos or begging stop going to school and earn more money than their genitors. This may cause considerable disturbance in kinship relations (as a result of the children's failure to show respect to their fathers or elders).

Some gifts may prove to be dangerous, when handed out indiscriminately, as is the case for medicines in particular. When available, hospitals and dispensaries may be better equipped for handling them. Similarly, sweets and sweetmeats have consequences that long outlive our visits (tooth decay).

Making use of local hotel accommodation ? rather than State or foreign hotel chains? local transport, paying the local populations for services (guides, cooks, mule drivers, porters, housekeepers...) is often the best way to make them derive direct benefit from tourist money.

A camera or a mere pair of shoes may be expensive items by local standards, with a value amounting to several months' or even several years' wages. Flaunting or handling them roughly may be perceived as shocking or misunderstood.

Haggling is a cultural aspect of the commercial tradition of some countries. Refusing to take part in it is often misinterpreted and may contribute to a rise in the cost of living. On the other hand, one must not forget that sums that may look trifling to visitors may be highly important for recipients.

As a general rule, visitors must refrain from taking advantage of the situation of impoverished local populations who are tempted to sell sacred or traditional objects or items that belong to their country's heritage (except when these are made exclusively for sale to tourists).

## **The only thing we leave behind us is our footsteps**

Natural landscapes and cultural sites are often a country's main tourist resource and the primary motivation for travellers to visit it. Travellers have responsibility towards the countries they visit.

Travellers must avoid leaving any kind of waste behind them. All means (such as biodegradable packaging, etc.) of limiting tourist-related waste must be used. It is advisable that visitors, when packing their suitcases prior to travel, include a limited number only of wrappings which they will throw away.

Non-destructible waste (such as plastic bags and batteries) should preferably be taken back home by visitors to places where a waste disposal infrastructure is not available

Certain types of waste (paper, toilet paper etc.) can easily be burned, though fire has a sacred status in some cultures and using it to destroy waste may be perceived as shocking. As a general rule, visitors must seek information on local waste management

behaviour. In some regions, tin cans, for example, could be left to be recycled by the local population, who may use them to make jewellery or other useful objects.

In some regions, gas or some other fuel that involved little wood consumption should preferably be used for cooking. If no gas cooking is possible, then dead wood lying on the ground should be used. Charcoal involves high consumption of live green trees.

Certain fragile ecosystems require certain precautions. Visitors should avoid walking or driving outside specific paths or driveways. Limit trampling and refrain from using power-driven means of transportation, etc.

Animal-watching should not modify the animals' natural behaviour or disturb their normal lives. Visitors should preferably keep to the distance considered safe by the animals and avoid making too much noise.

Local teams who guide you in your animal-watching may be prepared to break these rules in exchange for payment. However, watching an undisturbed animal is at the end of the day much more interesting than watching the same animal stressed by your getting too close to it.

Feeding animals modifies their diet and may be dangerous. In apes, for instance, this causes aggressiveness and thieving.

It is recommended to avoid using tape-recorders or other means to call animals so as to attract them and watch them; similarly, it is recommended to avoid touching animals for the sake of their own health and that of human beings.

Visitors should refrain from fishing in lakes or seas where fish are rare or belong to endangered species.

It is important to abide by the regulations in force in the Reserves or Nature Parks. Admission and accommodation fees help ensure the conservation and preservation of sites. Demanding receipt for the payment of such fees helps avoid these funds being embezzled.

A number of souvenirs that belong to the country's natural heritage should not be taken abroad. Graffiti or other marks often constitute indelible mutilations.

Agreements on the protection of species (CITES) ? aimed at protecting over 2,500 endangered animal species and 30,000 endangered plant species? prohibit trading in hides, ivory, shell, corals and shells, and importing live exotic animals.

Drinking water is sometimes a rare commodity that visitors should use sparingly and refrain from polluting. Visitors are recommended to opt as far as possible for phosphate-free washing powder and biodegradable soap and detergent, and to do their washing and washing up in places downstream of residential areas and far removed from sources of drinking water.

It is always better to ask for permission before using wells and pumps in villages and avoid washing near them, even if the villagers themselves do so.

## Conclusion

Our presence in a number of regions in the world can bring in money that is useful for their development. However, our naivety and our blunders can also cause irremediable harm. One of the essential ways of preventing this from happening is simple: getting informed. We believe that there are no bad or good travellers but only uninformed people. Through their professional activity, Atalante and Lonely Planet<sup>73</sup> have long been endeavouring to publicise these basic principles of a philosophy of travel. Nothing is systematic because a different approach is required for each country. Yet we would like to share these values with the greatest possible number of travellers and people working in the tourist business.

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<sup>73</sup> Partners have associated themselves with this Traveller's Code of Ethics. These are the [Mairie de Paris](#), the [Grands Reportages](#) and [Trek Magazine](#) periodicals and the [Aigle](#) brand. A number of tour operators support the information activity undertaken through the publication of this Traveller's Code of Ethics. These are: Ananta, [100% Nature](#), [66e Nord](#), [Terra Incognita](#) and [Tirawa](#).



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**The Regional Activity Centre for Specially Protected Areas (RAC/SPA)** constitutes one of the institutional components of the Mediterranean Action Plan (MAP) of the United Nations Environment Programme (UNEP), co-ordinated under the supervision of the MAP Co-ordinating Unit. The Centre was set up in 1985 to assist Mediterranean countries in implementing the Protocol on specially protected areas and biological diversity. The Centre aims at assisting Mediterranean countries to establish and manage marine and coastal protected areas and to conserve biological diversity.

Among the Centre's activities is a project for preparing a **Strategic Action Plan for the Conservation of Marine and Coastal Biological Diversity in the Mediterranean Region** -SAP BIO Project - (1 January 2001 - 31 December 2003).

Starting from an assessment at national and regional level of the state of marine and coastal biodiversity, based on existing scientific data, and taking into account the Jakarta Mandate (developed within the framework of the Convention on Biological Diversity) and the Protocol on Specially Protected Areas and Biological Diversity, the SAP BIO Project aims at analysing the negative factors that affect marine and coastal biodiversity, or the lack of information, and identifying concrete remedial action. Integration of the actions decided on at national, sub-regional and regional level, along with detailed investment portfolios, involvement of stakeholders, and the development of approaches and principles, will become the Strategic Action Plan for Biodiversity. In addition to this strategy, which is the final document of the processes, within the framework of the SAP BIO Project, a series of national and regional reports is being prepared.

The present document is part of this series.



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