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MEDITERRANEAN ACTION PLAN

Joint Expert Consultation on the Conservation  
of the Mediterranean Monk Seal

Athens, 11-12 January 1988

REPORT OF THE JOINT EXPERT CONSULTATION  
ON THE CONSERVATION OF THE MEDITERRANEAN MONK SEAL

Prepared in co-operation  
with IUCN

## INTRODUCTION

1. The United Nations Environment Programme (UNEP), through its Co-ordinating Unit for the Mediterranean Action Plan (MEDU) in Athens and the Oceans and Coastal Areas Programme Activity Centre (OCA/PAC), and the International Union for Conservation of Nature and Natural Resources (IUCN) have been approached by a number of intergovernmental bodies, governments and non-governmental organizations which have requested assistance or endorsement for a number of activities concerning the conservation of the Mediterranean monk seal. These activities are diverse and un-coordinated. UNEP and IUCN decided to make an effort to provide a rational framework for these activities as well as a mechanism for co-operation amongst the numerous groups working on monk seal conservation.

2. To this end an expert consultation on the management of the Mediterranean monk seal has been jointly convened by IUCN and UNEP OCA/PAC in collaboration with UNEP/MEDU. It was held during 11-12 January 1988 at the UNEP Mediterranean Co-ordinating Unit in Athens, Greece.

The purpose of the consultation was:

- to review all available information on the present status of the Mediterranean monk seal
- to review activities and plans of all interested parties dealing with the conservation of the Mediterranean monk seal
- to agree on a mechanism for future coordination of activities in support of the Mediterranean monk seal
- to agree on a set of priority recommendations in the form of an action plan, for the management of the Mediterranean monk seal

3. The Consultation was attended by experts or representatives of 17 organizations from 10 countries. A complete list of participants is contained as annex I to this report.

### Agenda item 1 - Opening of the Consultation

4. The Consultation was opened by Mr. Aldo Manos, Co-ordinator of the Mediterranean Action Plan (MAP), who welcomed the participants on behalf of Dr. M. K. Tolba, Executive Director of UNEP, and by Mr. D. Elder, Co-ordinator of the IUCN Coastal and Marine Programme.

5. Mr. Manos briefed the participants on the role of UNEP in the implementation of the Global Plan of Action for the Conservation, Management and Utilization of Marine Mammals in which the Mediterranean monk seal plays an important role for the Mediterranean basin. He referred to the regional seas action plan for the Mediterranean (MAP) and particularly to actions to be carried out through its Regional Activity Centre for Specially Protected Areas in Tunis.

6. Mr. Elder briefed the participants on the various activities of UNEP and IUCN for the conservation of marine mammals and stressed particularly the cooperation to protect the Mediterranean monk seal. He highlighted the activities of IUCN's Species Survival Commission and the Commission of Ecology both of which have special groups of experts who keep under scientific review the problems of Mediterranean coastal ecosystems and species.

Agenda item 2 - Organization of the Consultation

7. The Consultation agreed to apply the rules and procedures for meetings and conferences convened by the Executive Director of UNEP in its deliberations.

(a)- Election of officers

8. The Consultation elected its officers as follows:

Chairman:	Mr. M. Scoullos (Greece)
Vice Chairman:	Mr. F. Bourliere (France)
Rapporteur:	Mr. Alain Jeudy de Grissac (IUCN)

(b)- Organization of work

9. The work of the Consultation was in plenary sessions with the support of ad hoc working groups.

Agenda item 3 - Adoption of the Agenda

10. The provisional agenda as proposed by the secretariat was adopted. The adopted agenda is attached as annex II of the report.

Agenda item 4 - Review of the report on the status of the  
Mediterranean monk seal

11. The IUCN representative explained that the report on the status of the Mediterranean monk seal had been prepared jointly by UNEP and IUCN with the assistance of various consultants. Dr. Peter Reijnders presented the status report on the Mediterranean monk seal on behalf of IUCN/UNEP.

12. Additional information on the status of the monk seal gathered after the preparation of the document IUCN/UNEP/MM-IC/1.3, was available to the Consultation. This information was presented by Dr. John Harwood (HARWOOD, 1987) and Dr. Peter Reijnders (MARCHESSAUX, D., 1987 a and b).

13. The discussion which followed the presentation of the status report and additional information led to the creation of an ad hoc working group which drafted a statement on the present numbers of seals in the Mediterranean Basin. The statement reads as follows:

"The status report indicate a population of 400-600 seals in the Mediterranean Basin (Western Mediterranean 50-100; Eastern Mediterranean 300-500). However, these are not accurate figures but are based on the lowest and highest values reported from each country. The reliability of these results varies greatly: Some are purely anecdotal, others are based on direct observation."

14. Recent studies in Greece have shown that there can be wide variations in the number of seals observed in a particular area, because of seasonal changes in distribution and behaviour. Intensive, year-round studies are necessary to make an accurate assessment of the size of a local seal population. Where such studies have been conducted the resulting estimate of population size is usually higher than that from anecdotal report. Nevertheless, it is most likely that the total numbers of monk seals in the Mediterranean basin is less than 600 and possibly much less, while the Atlantic population is 200-400 animals.

15. Reports from all areas except Mauritania speak of a steady decline in numbers.

16. The participants agreed on the necessity of improving exact knowledge on the actual status of the monk seal populations in the Mediterranean. There was general agreement however, that such knowledge could be obtained only through intensive study in particular areas. It was felt that such studies were important, but not of the first priority.

17. There was general agreement among the participants that the major threats to the continued survival of the Mediterranean monk seal are:

- direct killings by fishermen, poachers and others
- entanglement in nets
- disturbance by tourists
- pollution

18. It was agreed that the Status Report could be improved by the inclusion also of information on monk seal populations from areas such as Madeira (Portugal), Mauritania, Atlantic part of Morocco, the Black Sea and the Sea of Marmara. Participants were encouraged to provide such information to the secretariat for inclusion in the report not later than 1 March 1988.

Agenda item 5 - Review of activities and plans for the  
Mediterranean monk seal conservation

Mediterranean Action Plan (MAP - UNEP)

19. The Mediterranean coastal states adopted on 3 April 1982 the Protocol concerning Mediterranean Specially Protected Areas. The Protocol entered into force on 23 March 1986 and has been ratified by Algeria, Cyprus, Egypt, France, Greece, Italy, Tunisia, Turkey, Yugoslavia and the EEC and signed by Israel, Malta, Monaco, Morocco, Spain in which countries the process of ratification is under way.

20. Exerpts from two articles in this Protocol are of particular interest concerning conservation of the Mediterranean monk seal. These are:

- "Article 7

The Parties having regard to the objectives pursued and taking into account the characteristics of each protected area shall, in conformity with the rules of international law, progressively take the measures required, which may include:

,...

d) the regulation of fishing and hunting and of the capture of animals and harvesting of plants ...."

- "Article 9

The Parties shall, in promulgating protective measures take into account the traditional activities of their local populations. To the fullest extent possible, no exemption which is allowed for this reason shall be such as:

,...

b) to cause either the extinction of or any substantial reduction in, the number of individuals making up the species or animal and plant populations within the protected ecosystems, or any ecologically connected species or populations, particularly migratory species and rare, endangered or endemic species ...."

21. The consultation invited the remaining Mediterranean coastal states (Lebanon, Libya and Syria) to accede to the Protocol as soon as possible.

22. All other organisations present at the Consultation were invited to present a summary of their activities and plans for the conservation of the Mediterranean monk seal. The full texts of these presentations are reproduced, together with comments from the participants, in annex III.

Agenda item 6 - Consideration of the draft action plan for  
the management of the Mediterranean Monk Seal

23. The draft action plan for the management of the Mediterranean monk seal presented to the Consultation as document IUCN/UNEP/MM-IC/1.4 was reviewed, and amended. The action plan, as endorsed by the Consultation, is reproduced in annex IV.

24. After the action plan had been amended and endorsed, the Consultation agreed to regroup and cost the different elements of the action plan in a format that would encourage their rapid implementation. Such regrouping has been done below under two headings: A. Urgent actions to safeguard remaining seals and B. Continuous, but less urgent actions.

A. Urgent actions to safeguard remaining seals

Actions to halt killing by fishermen

25. The principal cause of adult mortality is accidental or deliberate killing by fishermen. The monk seals have been shown to have a significant effect on small-scale inshore fisheries, an effect that has been aggravated, probably, by overfishing. First priority must be given, therefore, to changing the bases of fisherman-seal interactions. The strategy followed below may provide a practical way to do this:

a) The caves or other breeding and resting sites used by monk seals should be identified and given strict protection. Automatic cameras installed in each cave should provide the basis for determining the number of seals resident in each area;

b) The most important areas around each breeding or resting site, used by seals for feeding, should be established as a 40 kilometre buffer zone. In this zone large scale commercial fishing and touristic fishing should be prohibited. Small-scale inshore fishermen dependent on the area should be given exclusive rights to fish in the buffer zone. These fishermen should be provided with nets and other equipment known to present the least danger of accidental killing of monk seals. Fishing methods dangerous to seals should be prohibited. Management systems which allow the control of fishing pressure in the buffer zone should be introduced;

c) If necessary, beneficial measurements supporting the fishermen concerned with monk seals should be provided, such as supplying refrigeration units, financing harbour facilities, selling nets at reduced prices, reducing taxes etc. Such measurements may encompass single donations or benefits on a permanent or regular basis.

Regional co-ordination

26. The following elements of the action plan require regional co-ordination:

- operation of a regional data collection and information exchange network;
- establishment and co-ordination of regional protection projects;
- establishment and co-ordination of research projects;
- distribution of information materials;
- assistance to Governments with the drafting of legislation and the establishment of protected areas for monk seals;
- creation of a small expert advisory group;
- preparation of biennial status reports and organization of expert meetings.

27. The Coordinator of the Mediterranean Action Plan (MAP), Mr. Aldo Manos, agreed that the UNEP/MEDU office, Athens, could take responsibility for the coordination of the different activities.

28. The Consultation suggested that a person be employed through voluntary offers or through projects or contract to work, probably, through the Regional Activity Centre for Specially Protected Areas.

29. Appropriate sites for a network of monk seal reserves across the Mediterranean should be identified over the next 5 years, in addition to those already existing, and developed into protected areas supported by the necessary development controls on the adjacent coastline.

Information campaign to save the monk seal

30. An extensive information campaign throughout the Mediterranean, must be launched at once to sensitise the public to the drastic status of the monk seal and to mobilise political and financial support for the urgent measures needed. The monk seal should be adopted as the symbol of Mediterranean conservation. NGOs, researchers, governments and international agencies should coordinate their information activities for the greatest possible impact. Support for the campaign from the business community should be encouraged.

31. A set of information materials including video cassettes, radio scripts, exhibits, posters and pamphlets should be developed quickly and translated into the appropriate local languages for use by governments, schools and non-governmental organizations. Versions of these materials should be adapted to the following target audiences, fishermen, tourists, the general public, school children, military authorities, and industrial developers and those in the tourism and shipping industries.

Creation of two monk seal rescue centres

32. Rescue centres for wounded seals and abandoned pups should be established on a subregional basis in the eastern and western Mediterranean. Until such a Mediterranean center is fully operational a rescue procedure at an already existing seal nursing center, should be provided.

33. Based on the preliminary costings of these activities provided in document IUCN/UNEP/MM-IC/1.4 the Consultation estimated that to implement "the Urgent Actions" an amount of US\$1.8 million would be required.

B. Continued, but less urgent actions

Research on fisheries-seal interactions

34. Research projects should be supported in the following order of priority:

- data collection on seal movements and population size;
- feeding habits;
- reproductive biology;
- socio-economic aspects of the seals' impact on fisheries;
- improved fishnets, fishing techniques and possible repellants to reduce both seal damage and accidental drownings;
- techniques for safe capture and captive breeding;
- sociological research on attitudes of fishermen and other groups;
- possible genetic distinctions between populations.

Fund raising for protection of the Mediterranean monk seal

35. Implementation of the action plan for the Mediterranean monk seal will require financial support from many sources. In addition to direct government support for certain activities and support from the Mediterranean Trust fund, individual donors and non-governmental organizations should be encouraged to support action plan activities through a voluntary fund, or through direct support to the concerned organizations.

Transfer of young or isolated seals

36. If it proves to be necessary for the survival of the species, young seals from healthy colonies, and possibly isolated seals under threat should be transferred to build up well-protected breeding colonies. Grouping undersized colonies together may also need to be considered.



Regional expert meetings on monk seals

37. A regional expert meeting should be held every two years to review the status of the monk seal and the conservation actions necessary.

38. Based on the preliminary costings of these activities provided in document IUCN/UNEP/MM-IC/1.4 the Consultation estimated that the continuous actions would require an amount of US\$ 380,000 annually.

Agenda item 7 - Other business

39. No other items were brought up under this agenda item.

Agenda item 8 - Adoption of the report

40. The report was adopted by the Consultation at 19:00 hr on 12 January 1988. Editorial correction of the report was left to the secretariat.

Agenda item 9 - Closure of the Consultation

41. The Consultation was declared closed by the Chairman at 19:00 hrs on 12 January 1988. Mr. Aldo Manos, Coordinator of the Mediterranean Action Plan (MAP) expressed his satisfaction with the outcome of the Consultation and wished everybody a safe journey home.

Annex I

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Annex II

Agenda

1. Opening of the Consultation.
2. Organization of the Consultation:
  - (a) election of officers
  - (b) organization of work
3. Adoption of the agenda.
4. Review of the report on the status of the Mediterranean monk seal.
5. Review of activities and plans for Mediterranean monk seal conservation
6. Consideration of the draft action plan for the management of the Mediterranean monk seal.
7. Other business.
8. Adoption of the report.
9. Closure of the Consultation.

ON-GOING ACTIVITIES PRESENTED TO THE CONSULTATION

(A) DIRECTORATE GENERAL FOR ENVIRONMENT, CONSUMER PROTECTION AND NUCLEAR SAFETY OF THE COMMISSION OF THE EUROPEAN COMMUNITIES.

In the framework of the Actions by the Community relating to the Environment, a programme for monk seal conservation is being carried out by the Institut Royal des Sciences Naturelles de Belgique (IRSNB) in close cooperation with the services of the Commission. It involves the Greek Ministry of Environment, the Italian Ministry of Environment, the French Ministry of Environment, the Universities of Athens, Thessaloniki and München, the Sea Mammal Research Unit of Cambridge, the Rijksinsituut voor Natuurbeheer and the Parque Natural da Madeira.

Conservation measures provided for in this programme are aimed at reducing the causes of mortality directly attributable to man and at improving knowledge of monk seal populations biology and ecology.

The major actions scheduled till July 1988 in the framework of the Community programme include:

The establishment of a network of protected areas

The aim is to place the main nuclei of monk seal populations under protection.

The first protected zone to be established for monk seal was the Marine Park of Northern Sporades, Greece set up in September 1986. A second protected area is planned around Kefhalonia, Greece.

In Sardinia, part of the coast of the Golfo di Orosei was declared in July 1987, by ministerial decree, to be a Special Protection Area for seals.

A protected zone is in the planning stage, also, for the Desertas Islands in the Madeiran archipelago.

Information and rescue system and public awareness

Concurrently with the establishment of the network of protected areas, a system has been instituted to gather and exchange all information concerning seals and seal populations, and provide a framework for rescue operations. This system relies on local teams surveying coastal zones and sending the information collected to regional centres.

For the rescue aspect of the system, a Greek veterinarian has been trained in seal handling and a rescue station is being built in Alonissos. Meanwhile, rescue facilities of the Zeekonden Crèche of Pieterburen, Netherlands, collaborate in the programme. Two pups were rescued in 1987 and are now being kept temporarily in Pieterburen.

Studies on population biology and fisheries interactions

Studies on monk seal population biology and interactions with fisheries being carried out in Ionian Islands (Kephallonia and Ithaka mainly) and in the Northern Sporades.

Procedures for holding and captive breeding

Expertise in captive breeding may be essential if monk seal population continue to decline. A programme in this field is planned by the French Ministry of Environment.

Dissemination of information

The IRSNB regularly issues a newsletter entitled the "Monk Seal Bulletin" which gives news on the programme.

Comments on the EEC project

Since this project comes to an end by July 1988 all concerned were urged to ensure that follow-up activities are initiated (or continued if already started) so that no gap occurs in the efforts made up to now. Of particular importance is follow-up on projects carried out in the Ionian islands of Greece.

(B) FONDO PARA LA FOCA DEL MEDITERRANEO (Fund for the Mediterranean Seal) (FFM).

A private, non-profit association just launched in Palma de Mallorca (Spain) with the aim of raising funds for campaigns that may help prevent the extinction of the Mediterranean Seal (Monachus monachus) at least in part of its area of distribution. The legal constitution of the Fund dates back to March 1987.

The idea of launching the FFM followed the great success of similar initiatives undertaken in Spain in relation with other endangered species, and that received the economic support of over 10,000 people from all over the country (the case, for example, of FAPAS with respect to the Brown Bear).

The difference was that in our case there was no Spanish population of the endangered species to be saved. The Mediterranean seal disappeared from the country in the sixties, and since then only vagrant individuals have been observed from time to time. There is one seal (sometimes seen with a mate) in the Chafarinas archipelago, a group of 3 minute islands very near the border between Morocco and Algeria.

The vicinity of Spain to North Africa; the fact that (apart from the Aegean) the population of seals in Morocco and Algeria is the most important in the whole Mediterranean sea; and, finally, the conviction that nothing, almost, is being done on it, at international level in this area determined us to start our plan.

In order to raise funds, the first step of FFM was to issue a sticker (5,000 copies, at a cost of about 1,000 US dollars). The distribution of this material has signified until now an income of some 3,000 US dollars, still a very low figure to undertake any campaign of wide scope, but which enabled us to issue 5,000 awareness sheets and to distribute them in parts of Algeria and Morocco. A second step to raise funds has been the printing of 500 full-colour copies of a picture contributed by an artist (Jaume Ramis), which may represent an income of about 10,000 US dollars.

With this money, together with some grant from any big international organisation for nature protection, we intend to start a continued task in North Africa (particularly in the nearly 1,000 Km comprised between Tanger, in Morocco, and Alger), starting with a campaign we foresee taking place (if funds are available) during the July-September period of the current year.

This campaign will have the following major aims:

- a) To get a direct and accurate idea of the status of the Mediterranean seal in the area;
- b) To plot on a map the distribution of suitable habitat, breeding and resting grottos, proposed protected areas for the species, etc;
- c) To survey the fisheries activity in the area, and to get as much information as possible on the seal's impact and on the general relation between fishermen and seals.

The most important, to carry out a serious, efficient and massive awareness campaign, with the edition of the necessary material (designed also for people who cannot read), addressed basically to fishermen, their children, harbour authorities, coast-wardens and, to a lesser degree, also to simple visitors. This point would include the choosing of a "contact" in every spot where it is considered vital, whose mission would be to keep in touch with the organization and provide periodically any relevant news related with the seal.

Finally we must stress that our intention is to contact scientists and interested people both in Morocco and Algeria, in order to carry out the task together, so that it is officially regarded as a national (and not only foreign) initiative.

(C) TETHYS INSTITUTE

Status of Monachus monachus in Italy

All sighting reports from recent years come from Sardinia.

In 1987 monk seals were still seen in Sardinia. Sighting reports were obtained from the Gulf of Orosei area (2 seals) and from Tavolara (2 seals). One specimen was apparently found dead on a beach near Carloforte.

The presence of young of the year in the record of the past 3 years indicates that Sardinia may still be a breeding area for the species.

Of the 5 specimens which were found dead between 1984 and 1987, the deaths of 3 were likely to be caused by fishing gear.

#### Monk seal conservations in Italy

In summer 1987 the Ministry for the Environment decreed that in a large portion of the Gulf of Orosei, where monk seals are still found, navigation and fishing be prohibited.

Early in 1987 the Ministry for the Environment nominated a working group to implement the most urgent actions for the conservation of the monk seal in Italy. Members of the working group, which is coordinated by Edoardo Politano (Ministry for the Environment), are: Giandomenico Ardizzone, Università "La Sapienza", Roma; Giuseppe Notarbartolo di Sciarra Tethys, Milano; Angelo Tursi, Università di Bari.

The main tasks of the working group include:

- the preparation of a land use management plan for the Gulf of Orosei area;
- the assessment and monitoring of monk seal presence in Italy, with particular emphasis on Sardinia;
- the organization of appropriate awareness campaigns
- the implementation of an information-reporting scheme for monk seals
- in Sardinia.

In particular, Tethys was contracted by the Ministry for the Environment to:

- collect information on monk seal sightings, strandings and captures by preparing and distributing a report from, and by including Monachus monachus in a nation-wide cetacean stranding network runned by the "Centro studi cetacei", Milano;
- conduct an awareness campaign among schoolchildren in Sardinia, which will take place in the first half of 1988.

Finally, Tethys is presently raising funds to:

- conduct an awareness campaign among local communities in Sardinia, to take place at the peak of the Tourist season;
- in conjunction with the Italian National TV (RAI), prepare a documentary on the monk seal to be used in awareness campaigns;
- to organize an emergency rescue system for orphaned or wounded seals in Sardinia.

(D) MINISTRY OF ENVIRONMENT, FRANCE AND PORT CROS NATIONAL PARK

The French Ministry of Environment had decided to continue its support to the monk seal breeding programme undertaken by the Parc National de Port Cros (in connection with Marineland at Antibes), provided all necessary scientific precautions be taken to ensure its success.

The seals will be provided by the, Department of Fisheries Morocco and sent to Port-Cros, therefore remaining Moroccan property. They will be captured along the Atlantic coast, if a preliminary survey of the population of this area shows that it is large enough to allow the capture of a small number of animals.

To advise the Port-Cros National Parc at successive stages of the programme, an international scientific committee has been established by the Ministry; its first session took place in Paris, on 9 November 1987. The available techniques to be recommended for capture, handling and transport were discussed and recommendations were made. It was also decided to allow the captive animals a 3 month period of quarantine and acclimatization at Antibes, following their air transport to France. A second meeting is scheduled for February 1988, to review the situation, and to discuss breeding procedures.

The ultimate goal of this breeding experiment is to provide a small group of kin-related individuals for eventual re-introduction in a suitable environment in its country of origin. Pending a consensus among population geneticists, no re-introduction of Atlantic seals in the Mediterranean will be attempted.

A preliminary survey of the Moroccan Atlantic seal population is presently under way, between Cape Bojador and Cape Barbas, in order to assess the population and to identify the location of breeding colonies. Mr. Didier Marchessaux is in charge of this survey, whose results will immediately be made available to IUCN, WWF, the Council of Europe, EEC, UNEP and all interested agencies and individuals.

The International Committee sincerely feels that a captive breeding programme of the monk seal is amply justified to complement in situ conservation efforts. There are neither scientific nor ethical reasons for thinking that it should not be attempted.

Public awareness. Edition of leaflets and other educational material dealing with threatened Mediterranean species, or species or ecosystems of particular importance. One of these leaflets deals with the Mediterranean monk seal. It has been translated into Italian by the WWF. An important press book reflects the impact of the information campaigns of the Port Cros National Park with the French public.

Sociological research into attitudes of Corsican fishermen towards the monk seal (more exactly what do the old fishermen who had the opportunity to know the monk seal, remember about the animal, its role in the local culture, etc.).

Comments on the captive breeding programme initiated by the Government of France

Some members of the Consultation (Reijnders, Hart, Harwood, Deimer, Avella, Tydeman, Roch, Notarbartolo, Economou and Spiropoulou) noted that there was wide spread scientific agreement that there is no urgent need to begin a captive breeding programme. The species is not an imminent danger of extinction. Most of the information that comes from captive breeding or captive seal studies can be better obtained from studies on wild populations. The latter kind of information will contribute much more substantially to the management/conservation of the monk seal.

(E) SEA MAMMAL RESEARCH UNIT, UK.

As part of a study funded by the Commission of the European Communities and the International Fund for Animal Welfare, the Sea Mammal Research Unit has been investigating the population biology of the monk seal in Greece. Techniques for monitoring the size, migration rates and habitat use of local populations without disturbing the seals were developed.

In collaboration with the Institut Royal des Sciences Naturelles de Belgique the Unit has been developing stochastic models of the dynamics of small populations of monk seals. These models have indicated that all of the remaining monk seal populations are potentially in danger of extinction from chance events. However, by careful monitoring of population size, sex rates and population production it is possible to predict when these populations are most vulnerable and take appropriate management action. The same techniques can be used to determine which local populations will benefit most from concerted conservation action.

The Unit has also developed a relatively cheap "camera trap" which can be used to obtain photographs of the individual seals in a local population. If these traps are properly deployed they can provide information to estimate the size of a local population and the amount of interchange between neighbouring populations. A protocol for this deployment is available from the Unit. Ideally the results from using these camera traps should be combined into a single catalogue which would document all the monk seals which can be recognised individually. This would allow longer range movements of individual seals to be identified and would provide a reliable estimate of the size of the monk seal population in the Mediterranean.

(F) MINISTRY OF THE ENVIRONMENT, PHYSICAL PLANNING AND PUBLIC WORKS, GREECE

Special interest for the rescue of the Mediterranean seal (Monachus monachus in Greece, has come up with the motivation of international organizations. In the late '70s an international meeting had been organized in Rodos island where apart from representatives of international organizations, several societies for nature conservation, research institutes and government employees from the competent services of the country have participated in that meeting.

The above meeting has succeeded in the first place, to activate the non-governmental bodies and the Greek Universities towards effective research for the seal and especially to sensitize the public administration and the political leaders of the country.

In 1982, the Ministry of Physical Planning, Housing and the Environment, had submitted a programme for financing, to the EEC 11th Directorate, which resulted in the approval of the first contract between Greece and the EEC., in November 1983, with a total cost 215.000 ECU, concerning the detailed study of the seal population status, of the Northern Sporades ecosystem and the creation of a background for the general management of the area.

### Research

The materialization of the above contract began in 1984, with the working-out of the above studies. The data existed since 1984 concerning the presence of the seal in our country, were depended mainly in individual observations from several Greek and foreign scientist, who recorded certain information acquired from the local people not only in the Northern Sporades but also in other regions of the country.

The Environment Directory of our Ministry has assigned the systematic research of the N. Sporades area, to the Aristotelion University of Thessaloniki, to the Kapodistriakon University of Athens and to the "Democritus" Centre of Nuclear Research.

The final results of this study were significant, mainly because the presence of a considerable number of seals in the area has been verified. That is approximately twenty (20) individuals in the islands of Peperi, Gioura, Kira Panagia, but considering the greater area of Northern Sporades, the respective number of seals, reaches 35-40 individuals. Additionally it has been estimated that the reproduction rate of the species is varying between 16% and 20%.

That study has also revealed other valuable environmental data which add a greater ecological importance to Northern Sporades, like the presence of Falco eleonora, Larus auduini, Corallum rubrum, Palnurus elephas and many other marine and terrestrial flora/fauna species.

Together with the carrying-out of the study mentioned in Northern Sporades, a seal population study has began in Cephalonia island by the Sea Mammal Research Institut of Cambridge, where there was an evidence for the presence of a significant number of individual seals. There was attempted the recording and the monitoring of the species behaviour with the use of special equipment.

### Public awareness and sensitization

Only a part of the entire work has been mentioned so far, which has been the principal frame for the beginning of the implementation of the whole programme, towards the Northern Sporades ecosystem management.



The second stage of that programme should not be separated from the first one, and it began simultaneously with the slow introduction of the initial research information and the first contact with the native population of the area, under consideration.

As the absolute competent of the entire programme and specifically responsible for the implementation of the second stage (Public awareness and sensitivation), I was amazed with the way that the local people consider their coexistence mainly with the seal and generally with nature. Everything was depended upon the amount of their reward or better of their compensation for something that they destroyed, due to their ignorance, resulting in the gradual decrease of their economical activity.

After my continual contacts and discussions with the locals, and especially the fishermen, the initial idea for immediate compensation started to change. An idea grown wrongly among those people, from different Greek and foreign bodies trying to take the fishermen on their side, to stop the seal killing. I believe that such an effort is completely wrong to follow, considering our country, where we know pretty well the fisherman's, farmer's and stock-breeder's character and attitude.

We talk to them honestly, indicating that our aim is absolutely not their isolation but their integrated role in the broader ecosystem through a variety of appropriate and fair activities.

We devoted the first year in the understanding of their problems and in attempts to agree on feasible solutions. Problems, not related strongly with the seal. Although many believed that the programme was a failure because our method was false, at the same time we managed to save, without a law order, in Northern Sporades the seal from immediate elimination.

The highlight of our success in that programme was the accusations, from several representatives of the Fishing Cooperative through articles in the newspapers, for unexplainable delay in the implementation of the program and mainly of a certain law order for the area, while the Ministry believed that this law should certainly be the result of the research findings and the proposals of the competent statutory authorities.

In summer 1986 a 3-day symposium called together in Alonissos island where the conclusions of those studies have been presented, as well as the proposals of our Ministry for a legal status valid in the area and mainly the background suitable for its application. The most important aspect of the symposium has been without doubt the proposals for the absolute management of the area cited by the fishermen, which were more advanced from those of the Ministry, anticipating several restrictive measures for them, ensuring the eventual rescue of the seal in the entire area. It is worth to mention that in their written reports there was no reference on economic profits for their remarkable offer.

The last two years in our country it has been undertaken a Panhellenic campaign from our Ministry towards the seal conservation, which is centered in the Northern Sporades Marine Park and concerns mainly the following sites:

- Ionian islands with central point Cephalonia island, which should legalize the protected area until summer 1988 together with the establishment of the proper background;
- Crete island with central point the city of Iraklion and the involvement of the local University;
- Cyclades island complex with central point the island of Syros involving the Prefecture services and the Fishing Cooperative;
- Northern Aegean Sea, with central point the island of Lesbos (Mitilini). It is planned the carrying-out of a special programme not only for seal conservation but also for the appropriate management of the fossil forest as well as for the management of the wetland in Kalloni Bay, extremely and internationally important for the wild owl conservation, though it is the most vital station during the migration period in the East Aegean Sea;
- Dodecanisos island complex with central point the Rodos island where the AQUARIUM exists.

In the above mentioned areas, special teams are organized from the competent services of the respective Prefectures, which consist of an environmentalist of our Ministry, a veterinary surgeon of the competent service, the port patrol and the fishing inspector.

#### Background

There are many things in need to be taken care towards the direction of a background and an organization of a suitable recording, monitoring and care system for the seal, as well as for other species.

The right function of the Northern Sporades marine park depends mainly on the completion of the structural works in the area which is anticipated for May 1988 and comprises of the creation of a full reserach station, equipped with the necessary materials, instruments and competent personnel, as well as on the construction of two suitable pools used for the health care and study of the seal and for the other marine organisms in general.

Additionally, the municipality of Volos city is building a small pool in an urban park under construction, with a relevant clinic centre useful for the health care programme of the seal.

### International cooperation

Through that programme our Ministry has cooperated, apart from the EEC, with research institutes holding extended experience on those issues, namely the Sea Mammal Research of Cambridge the Texel Research Centre of the Netherlands and the IRNB of Belgium.

Finally, the financial reinforcement of the IFAW to the programme is of great importance, for the pool construction, the purchase of a 4X4 vehicle, of a computer terminal and of a proper boat for the monitoring and patrol of the area for the support of the research task of the Biological Research Station.

### A strategy for the Mediterranean Sea.

From the existing data, it is obvious that the 80% of the seal population left in the Mediterranean Sea, inhabits the Greek Seas.

This element is not random and according to my opinion, is due to the existence of certain zones in the islands and in the rest of the country, where geological formations and ecological stability offer perfect biotopes for the survival of the seal. The above indications together with the absence of man in those areas, give us the chance to be optimistic about the future of the Mediterranean seal.

Nevertheless, the survival of the seal only in Greek territories is not the principal aim. We should commence a major campaign for all the Mediterranean countries starting with those areas where the species still exists, even in limited numbers.

So, we should begin to survey those areas, in order to understand the reasons for the decrease of the seal population, for which I believe that not only the fishermen are responsible, but also crucial is the alteration of the ecological balance in the area from activities and interference in there or in the greater region.

Regarding all the above, a network consisted from all the protected areas for all the Mediterranean countries should be created, where all the valid measures of the state should be related to the socio-economic conditions for every area and each country. The increase of the seal population for those areas where it is limited, or the enrichment of those with existed seals, should be very careful and after reassuring all the necessary arrangements for their survival.

I believe that the seal reproduction in captivity, should be a secondary aim, and it should be started perhaps later in certain sites where the number of seals in the natural environment will be satisfactory and their introduction would be more feasible, to see the adaptation degree of the species.

The marine park of Northern Sporades could possibly be that centre, which has all the advantages needed for such a Mediterranean scheme. Additionally, areas of the Italian Peninsula should be examined for natural enrichment capabilities, from the Ionian islands region, through a common programme between the two countries involved.

For that reason and for the application of an integrated programme for the rescue of the seal and the rational management of the Mediterranean Sea towards the conservation of other endangered marine organisms, I suggest the creation of a centre which will have the necessary background for the realization of relevant studies and the application of associated plans. It would also be an information centre for all the organizations, and the absolute receiver of every data from overseas.

The conducting of an international congress is suggested, examining "The rescue of the Mediterranean seal and Management of vulnerable marine ecosystems in the Mediterranean Sea", for May 1989.

The Greek Ministry of the Environment focusing on the Marine Park of Northern Sporades, suggests to co-organize the congress with the EEC and UNEP.

My report has made clear that the Northern Sporades Park has been created with the joined efforts of the Greek Government and international organizations with great offers in the financial and scientific field.

The experience which we have gained from the materialization of such programmes and also the prosperous collaboration on research issues between Greek and certain European research institutes, could possible be continued in the research centre of the Northern Sporades Marine Park towards programs aiming at the preservation of the seal not only in Greece, but also in the rest Mediterranean territories.

I also need to express my gratitude to all those who helped to realize the Mediterranean seal programme and especially to my close associate in that programme, Mrs. Rania Spyropoulou.

A. Economou  
Biologist  
Responsible for the Programme

## Annex IV

### Action plan for the management of the Mediterranean monk seal (Monachus monachus)

#### Introduction

1. The parties to the Barcelona convention included among their priority targets to be achieved by 1995 the protection of the Mediterranean monk seal (Genoa, 9-13 September 1985).
2. The populations of the Mediterranean monk seal have declined rapidly and drastically. Concerted and effective action by all the countries of the Mediterranean concerned is required in order to reverse this trend.
3. Many important aspects of the monk seal's biology and behaviour are too poorly known to plan a complete management strategy for the species, but so few seals are left that research on them has become very difficult. The situation is too critical to put off action any longer. Plans must be made using the best data available, and then adjusted if necessary as more information is obtained. Action must be taken now.
4. Proposals from various sources which could help to save the Mediterranean monk seal from extinction are included. Scientific opinion is divided as to what is appropriate or unwise. Some possible actions are controversial and may involve some risk to the seals involved. The species is known to be sensitive, and its reactions to close observation or capture are uncertain. However, for a species in danger of extinction the risk of doing nothing may be even greater and may justify active intervention as a last resort. Such actions should be undertaken only, after every effort has been made to evaluate and minimize the risks involved.
5. The major threats to the monk seal are deliberate or accidental killings of adults mostly by fishermen; and human disturbance of breeding areas. Both have increased as men and seals compete for increasingly scarce resources (fish and remote coastal areas). The first priority is the preservation of remnant populations of the monk seal. The challenge is then to find that delicate balance between the biological requirements of the monk seal and human uses of the Mediterranean and its resources that will allow the species to recover to a viable population level.
6. This action plan for the management of the Mediterranean monk seal outlines both immediate and longer-term actions which, if taken together may succeed in reducing pressures on the remaining seal populations enough to permit gradual recovery. No one action by itself is enough. The different components of the management plan are mutually reinforcing and must be taken together to have the chance of success.

Reduction in adult mortality

7. An urgent information campaign among fishermen in all areas where the seal occurs must aim to neutralize their antagonism to the monk seal and win their support for protective measures.
8. Governments should encourage the co-existence of fishermen and monk seals by developing programmes which regulate and control fishing activities and provide additional facilities and opportunities to local fishermen communities.
9. Governments should ensure strict enforcement of regulations prohibiting the use of dynamite for fishing operation, the carrying of firearms in boats and the use of any other illegal fishing techniques endangering the monk seal.
10. Improved fishing nets should be developed which seals cannot damage or become entangled in, and fishermen should receive the assistance necessary to convert to using such nets. Research is needed on techniques for repelling seals from fishing equipment and fishing areas.
11. States that have not yet extended legal protection to the monk seal should do so at once.
12. Governments are strongly urged to ensure that existing protective measures are enforced.

Establishment of a network of marine reserves

13. All countries that still have breeding Monk Seal populations should make immediate efforts for the stringent protection of the remaining seal breeding sites, by isolating seals from incompatible human activities.
14. An inventory of caves all around the Mediterranean is needed to identify breeding caves for inclusion in a network of protected areas for monk seals. Such work has already been carried out for sites like Sardinia, Greece (Northern Sporades), Tunisia (Galite) and should be expanded to cover other areas.
15. A network of marine reserves should be created across the Mediterranean, covering both existing and potential monk seal habitats, so spaced that they can be gradually repopulated as other protective measures take effect and the population recovers. Monk seal reserves should protect suitable caves or other breeding and resting areas, and should be surrounded by a buffer zone of 40 kilometres covering major fishing areas. Fishing with nets or other techniques known to threaten or conflict with the seals should be prohibited or controlled in the buffer zone. Coastal development should be restricted to compatible activities, and intensive tourist development should be avoided in these zones.
16. Tourist visits or other human disturbance of breeding and resting sites should be carefully regulated, it should be completely prohibited during the seal breeding season and while the pups are young.

Research, data collection and rehabilitation

17. All countries should encourage an intensive programme of data collection on seal biology and ecology and the interaction of seals with fisheries. The latter research should include economic and sociological aspects. Research should be conducted so as not to increase the threats to any seal population.

18. The establishment of national networks of observers is an extremely effective way of determining which areas are of particular importance for the seals. The exact numbers of seals in these areas can then be determined by intensive study using, for example, "camera traps". Sightings of seals should be reported to appropriate national bodies or focal points.

19. All information obtained on the species should be compiled and evaluated on a regional basis, possibly by an expert group under the auspices of the MAP, UNEP/MEDU, Athens and be distributed through its information exchange network.

20. A small number of rescue centres should be established to receive wounded seals and abandoned pups. When they have recovered these seals should be released in protected areas, preferably in the region where they were originally found. The survival of these animals and the contribution to the wild population should be carefully assessed.

21. If all other attempts to reverse the species' decline fail, the following measures should be considered: captive breeding; translocation of isolated, non-reproducing individuals to better protected groups; and the transfer of pups from healthy colonies to undersized or newly established ones. All appropriate precautions to ensure the adequate welfare of the animals and adherence to international agreements should be taken.

22. A pilot project to determine the practical feasibility of such programmes may be appropriate if it does not increase the risks to the remaining wild population. The value of such a programme for the conservation of the stocks concerned should also be assessed.

Information programmes

23. An information programme for fishermen and fishing communities should aim at reducing the killing of seals and encouraging reporting of seal sightings and other observations to the appropriate focal point.

24. Special information activities should be developed for tourists and the tourist industry in areas where tourism threatens seal breeding areas.

25. Information materials should be produced for military authorities, industrial developers and the shipping industry concerning actions they can take for monk seal conservation.

26. A widespread campaign for the protection of the Mediterranean monk seal should encourage public support for conservation measures.

27. Training programmes should be developed for protected area managers responsible for monk seal reserves.

Co-ordination, Review and Finance

28. The Coordinator of the Mediterranean Action Plan (MAP) agreed that the UNEP/MEDU office, Athens could take responsibility for the coordination of the different activities.

29. The major coordinative functions will be:

- a) collect the data;
- b) create an information network;
- c) develop monk seal protected areas; and
- d) facilitate regional research projects on monk seals.

30. The Consultation suggested that a person be employed through voluntary offers or through projects or contract in order to facilitate coordination of existing and new activities for research, protection and management.

31. The status of the monk seal and the content of this management plan should be reviewed by a regional expert meeting every two years and its report be submitted to the meeting of the contracting parties of the Barcelona Convention for endorsement.

32. Governments, whose local monk seal populations have been exterminated, should assist countries with remaining populations in their efforts to protect these in the hope that recovery of the species will permit its eventual reintroduction throughout its original range.



## Annex V

### List of documents

#### Working Documents

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|-------------------|---|
| IUCN/UNEP/MM-IC/1 | Provisional agenda.   |
| IUCN/UNEP/MM-IC/2 | Annotated provisional agenda.   |
| IUCN/UNEP/MM-IC/3 | Report on the status of the Mediterranean Monk Seal.  |
| IUCN/UNEP/MM-IC/4 | Draft Action Plan for the Conservation of the Mediterranean Monk Seal.  |
| IUCN/UNEP/MM-IC/5 | Report of the Expert Consultation on the Management of the Mediterranean Monk Seal (to be prepared during the meeting). |

#### Information documents

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|-----------------------|---|
| IUCN/UNEP/MM-IC/INF.1 | Provisional list of documents   |
| IUCN/UNEP/MM-IC/INF.2 | Provisional list of participants  |
| IUCN/UNEP/MM-IC/INF.3 | Population biology of the Mediterranean Monk Seal in Greece.  |
| IUCN/UNEP/MM-IC/INF.5 | Etude de l'évolution du statut du Phoque Moine en Tunisie et dans l'archipel de la Galite. Propositions pour une gestion régionale. |

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- The Mediterranean monk seal in Turkey.  
Report on a mission to Turkey for  
IUCN-UNEP.
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- Description analysis and pilot project for  
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