

## **NATIONAL STRATEGY FOR THE CONSERVATION OF THE MONK SEAL IN GREECE**

### **MOM/ the Hellenic Society for the Study & Protection of the Monk Seal and Archipelagos – Marine and Coastal Management**

#### **1. INTRODUCTION**

The Mediterranean monk seal, *Monachus monachus*, is the rarest seal species and one of the six most threatened mammals in the world. The species is included in the Bonn Convention on the Conservation of Migratory Species of Wild Animals (1979), the Bern Convention on the Conservation of the European Wildlife and Natural Habitats (1979), the Barcelona Convention for the Protection of the Mediterranean Sea against Pollution (1977), the Washington Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES, 1973), and the Protocol on Specially Protected Areas (1982) ratified by the European Union and by Greece.

Being the number one endangered mammal in Europe, the Mediterranean monk seal is considered by the European Union to be of Community interest since it is listed as a priority species in Annex II of Council Directive 92/43/EEC, of 21 May 1992, on the Conservation of Natural Habitats and of Wild Fauna and Flora (Habitat Directive). In the same Directive (articles 2, 4, 10, 11, 12, 18, 22), the EU instructs the member states as part of the overall plan of action:

- to promote the studies necessary to determine the status of the species, based on which conservation measures should be designed and implemented and,
- to take all necessary actions in order to ensure the conservation or restoration of the populations of Mediterranean monk seal and its habitat to a satisfiable level.

In the same spirit, several international organisations have made similar recommendations for effective measures for the conservation of this species.

In Greece, the Mediterranean monk seal is given complete protection by the Presidential Decree 67/1981, while actions for the protection of the species at a local level had already started by the mid 70's. In particular, two organisations, having elaborated an operational framework in accordance with the above guidelines, are continuously working in the field covering a large part of Greece, since the mid 80's with positive and encouraging results.

MOM/ the Hellenic Society for the Study and Protection of the Monk Seal is a non-profit NGO established in 1988 by a group of biologists and researchers of the Department of Ecology and Zoology of the University of Athens. Today it is supported by 4,800 members from Greece and from abroad. The goals of MOM are the study of the biology, ecology and behaviour of the Mediterranean monk seal and its protection with all legal means.

MOm since its establishment, operated continuously specific projects at the national and local level in the following fields: Establishment and management of protected areas, surveillance and guarding of protected areas, scientific research, rescue and rehabilitation of orphan or wounded animals, establishment and operation of a national information network, public awareness and sensitisation, environmental education in schools of major cities and of coastal areas of the country.

The non-profit NGO 'Archipelagos – marine and coastal management' is a private nature conservation group founded in 1991. Members of the group have been working since 1985, without interruption, on issues that concern the protection of the monk seal mainly in the central Ionian Sea, but also at the national level in the following fields: Scientific research, study of the seal-fisheries interaction, promotion of the establishment of protection areas, establishment and operation of an information network at a local level, public awareness and sensitisation, and environmental education in schools.

In parallel, the activities of Archipelagos include programmes for the protection of marine turtles and recording of cetaceans in close collaboration with the fishermen of the region; chemical analyses of the marine food chain (sea water, fish, seals, humans); the promotion of several types of non-intrusive tourism; environmental education and public awareness programmes; and programmes for the protection and sustainable use of marine resources.

The above two organizations, considering the status of the Mediterranean monk seal as precarious and recognising the need of a formal long term national strategy binding both national and EU-authorities, lay down the document of the above operational framework that may serve as a basis for the elaboration of a joint strategy.

## **2. GENERAL STRATEGY FRAMEWORK**

The fact, that in Greece lives and breeds at a satisfiable level the largest monk seal population in the European Union and more than the half of the remaining total world population, dictates the concentration of conservation efforts within the Greek space. In order to ensure the conservation of the Greek populations it is necessary to consider and evaluate the threats the species is facing. It is commonly acknowledged that the two main threats for the monk seal populations in Greece are:

- (1) Mortality, mainly due to deliberate killings (primarily caused by fishermen),  
and
- (2) Continuous loss of available habitats due to a variety of increasing human activities (disturbance, industry and, mainly, uncontrolled tourism development)

Other factors, such as accidental deaths of seals due to entanglements in fishing gear, pollution, shortage of available food due to overfishing, and intrinsic biological factors, do not appear to play a significant role at present for the survival of the species, but may prove to be important in the future.

The above two main threats both have detrimental consequences on the reproduction and survival of the species and are not reversible. In order to halt the dramatic decrease of the populations, two types of parallel actions with (1) short term and (2) long term goals are imperative:

- (1) Actions aiming at the reduction of human caused mortality in the immediate future, specifically deliberate killings of seals, or else extinction seems inevitable, and
- (2) Actions aiming at the effective long term conservation of seal habitats, thus the remaining animals will have secure shelters, the possibility to reproduce and adequate food supply.

**Means, ‘tools’, for an effective conservation in order to avoid extinction, are:**

- The establishment and effective management of ‘special conservation areas’ (following the EU Habitat Directive terminology)
- The reduction of human caused mortality related to fisheries
- The information to and education of the public
- The research on the biology and ecology of the Mediterranean monk seal
- The rescue and rehabilitation of sick, wounded or orphan animals
- The reduction of pollution
- The reduction of overfishing
- The improvement and enforcement of the existing legislation
- The breeding in captivity and the introduction to/establishment of colonies, as a last solution

From the above means, the establishment and effective management of special conservation areas and the reduction of human caused mortality, always accompanied by public awareness campaigns, are considered to be of highest priority.

All means analysed below should be implemented through co-ordinated actions of all concerned bodies, national and community as well as international, taking always into consideration the cost-benefit factor.

Furthermore, the possibility of revising part or the whole of the strategy, when this is proven necessary by new data related to the species, must also be foreseen.

### **3. DETAILED ANALYSIS OF MEANS**

#### **(3.1.) Establishment and management of ‘special conservation areas’**

It has been shown that in order to increase the probability of survival of the species, as many local seal populations as possible should be protected. In order to achieve this goal, a network of special conservation areas with strategic distribution throughout Greece must be established the soonest possible, so as to ensure the conservation of important local populations. Such distribution will, at the same time, ensure the survival of local populations in cases of epizootic or other catastrophes. The necessity for immediate implementation of this measure is reinforced even further by the fact that long-term and apparent results are expected gradually.

The special conservation areas must be chosen with strict criteria based on international guidelines and on existing international standards. The selection criteria for the areas of the

network should be based on the importance of each local seal population, the geographic distribution of the areas within the country, the ability of exchange between the local seal populations (migration corridors), and the degree of human activity in each area. The special conservation areas must function effectively as soon as possible ensuring beforehand, or at least in parallel with the other actions, the acceptance by the local public of the necessary regulations to come; a basic and most important prerequisite for the success of this measure. A long-term and integrated planning, aiming at the sustainable development, including the human factor, and taking into account all relevant socio-economic factors, is imperative for these sensitive areas.

A necessary precondition for the establishment of the above network is the existence of effective management in the two areas of well known importance and in which long-term and co-ordinated conservation efforts have been carried out with positive results, namely the Northern Sporades and the Ionian, so as to ensure optimum protection. Moreover, these two areas will serve as 'demonstration models' for the establishment of future conservation areas of the network, since without successful 'models' similar regulations will hardly be accepted elsewhere. In addition, the experience gained from these areas will facilitate and accelerate the procedures for establishing and managing of future network areas, which should start in parallel the soonest possible.

### **(3.2.) The reduction of human caused mortality related to fisheries**

The deliberate killing of seals, mainly by fisherman due to damages to fishing gear caused by the animals, is the main reason for the decline of populations throughout Greece and must be faced immediately and independently of the previous measure. The establishment of special conservation areas by itself does not ensure the survival of the species. Firstly, animals may move out of these safe zones, and, secondly, the survival of the remaining seal populations and of individuals moving outside conservation areas is not ensured, since such a network can not cover sufficient geographic space throughout the country.

For the above reasons, the policy capable to ensure the survival of the remaining seal populations must be based on a mechanism covering the country in a uniform and satisfiable manner, thus on the sector mainly involved in deliberate killings and at the same time covering the entire Greek marine area, namely fisheries. Taking into account that conservation efforts may involve socio-economic changes in the coastal communities, it is necessary to substantially involve the local public (fishermen, local organisations, authorities, etc.) in the conservation activities and to establish mutual trust and co-operation.

The accidental death of seals in fishing gear is an additional factor related to population decline in which fisheries are involved. This factor can not be adequately assessed with the scarce existing data. Moreover it is difficult to quantify due to intrinsic reasons: Since the killing of a seal is illegal, such incidents will remain unknown at least as long as fishermen are not actively involved in conservation efforts. Further research and data collection would provide the necessary background for the development of adequate policies to avoid fishing methods most likely to cause accidental deaths of seals. If accidental deaths prove to be an important mortality factor (in particular considering the increasing use of fishing gear), the strategy for the conservation of the monk seal will possibly have to be partly revised.

It should be noted here that during the last decade, very little attention has been given to the seal-fisheries interaction, a crucial factor in the conservation of the species. The reduction of killings is the only protection measure that can have positive results in the short term.

### **(3.3.) The information to and education of the public**

Informing and educating the public must always be an integral part of any conservation activity at the local and the national, but also at the international level, in order to ensure the acceptance and collaboration of the public. Effective conservation will be realised only when the rationale and the implementation of necessary measures will become a part of the public's opinion.

### **(3.4) The research on the biology and ecology of the Mediterranean monk seal**

Internationally, the knowledge of the biology and ecology of the Mediterranean monk seal is still limited. Data relative to important population factors such as reproduction rate, mortality, age structure, migration, home range, epidemiology, behaviour and food preference are either scarce or non-existing. Research on a long-term basis, ensuring the continual collection of data on such a long-lived and rare species, is necessary in order to acquire essential data that will allow the detailed design of effective conservation measures in the near future. Within this frame, the systematic and regular monitoring of the populations' status, using the existing scientific methodologies, is considered integral part of the research on the species and should be continued. However, at this stage, the use of additional research methodologies, such as telemetry, photography, and video, is necessary, since they can provide previously not available data on the ecological requirements of the species.

However, research by itself does not constitute a conservation measure nor is it capable of reducing the threat of extinction. It should be emphasised that the up-to-date experience has proven that restricted research activities, such as habitat surveys scattered in time and space, without strict selection criteria for the site to be studied and without considering a follow-up, are of limited value in evaluating the status of the population or the use of habitat. The aim to cover as soon as possible the entire country with scattered surveys is not essential. Moreover, such activities can create a negative attitude to the local people of the area under consideration. For the above reasons, any research field activity within the framework of a national strategy for the conservation of the species should be included in a broader long-term scheme of activities, should be accompanied by public awareness programmes, and should involve as much as possible the local people, thus ensuring the maximum acceptance for conservation measures.

### **(3.5.) Rescue and rehabilitation of sick, wounded or orphan animals**

An additional factor of population decline is mortality of wounded, sick, or orphan newborn animals. Even though, the existing data do not allow to assess the significance of this factor, the status of the species makes responding to such incidents necessary.

The rescue, treatment and rehabilitation of such individuals under specific and strict veterinary, biological and zootechnical conditions is being already performed successfully. Furthermore, under such conditions, data relative to the development, physiology, parasitology, virology, bacteriology, behaviour, veterinary care and release procedures can be collected, while this is not possible in the wild. Additionally, knowledge related to holding the species in captivity will be essential for the conservation of the species in cases of emergency (catastrophes, epidemics, breeding in captivity). Lastly, it should be noted that this measure has a significant indirect effect in the sensitisation of the public, especially of the local people.

However, the evident ultimate goal of such a programme, namely the release of animals in their natural habitat and their conservation, makes the effective implementation of the other measures imperative and should not be considered independently from them.

### **(3.6.) The reduction of pollution**

The levels of marine pollution do not appear to be the main cause of decline in the case of the Mediterranean monk seal. In Greece levels of pollutants are at present considered to be low relative to other countries. Based on the scarce existing data pollution does not appear to have seriously affected the Mediterranean monk seal. However, indications from other marine mammals imply that high levels of pollutants can cause serious problems to their immune system as well as significant reduction to their reproductive rate. Furthermore, in cases of large-scale pollution disasters (oil spills, etc.), the consequences are serious and immediate since populations are condemned – if they do not escape – and habitats are destroyed. The above makes the task to reduce to a minimum the possibility of pollution, necessary. Lastly, taking into account the characteristics of the species, mechanisms of immediate response in cases of major catastrophes must be established.

### **(3.7.) The reduction of overfishing**

In the context of the overall seal-fisheries interaction, overfishing (with either legal or illegal means) is one more factor that may affect the Mediterranean monk seal negatively. The over-exploitation of marine resources may cause a reduction in food availability. Food shortage, in turn, may affect growth rate, pregnancy and survival.

Overfishing may be reduced through adequate management policies in fisheries. Major problems are the scattered, uncoordinated and sometimes insufficient, contradicting and obsolete regulations of fisheries legislation (high numbers of amateurs, low penalties, etc.), the lack of knowledge about marine resources and their regeneration, and illegal fishing activities. Illegal fishing is the only aspect of the over-exploitation of marine resources that can be addressed in the short term through the strict enforcement of the already existing laws by the responsible authorities. The design of an integrated fisheries policy is a rather long term task, which is though necessary to be initiated immediately in order to have timely results. Integral parts are the research in fisheries and the review of the existing legislation for the elaboration of future policies aiming at the regeneration of the marine resources and their sustainable use taking into account the needs of the country in fisheries harvest as well as the requirements for environmental conservation.

Lastly, the reversal of the over-fishing may mitigate the seal damages to fishing gear, the main cause of deliberate killing of the animals.

### **(3.8.) The improvement and implementation of existing legislation**

The existing national and community legislation covers satisfiably most aspects of the issue. However, there is a legislative gap in the Presidential Decree 67/1981 relative to the penalty for violating the law, which should be remedied the soonest possible.

The implementation of the legislation is however insufficient due to the particularly large and fragmented Greek coastline in conjunction with the poor means of control (in terms of infrastructure and personnel), and the lack of information. The improvement of the means of

control and the timely and accurate information are imperative measures. However, apart of the above, taking into account the characteristics and structure of small communities throughout Greece, involvement and awareness of the local people in conservation is expected to considerably improve the enforcement of the legislation.

### **(3.9.) Breeding in captivity – introduction to/ establishment of colonies**

The breeding in captivity and the introduction to and/or the creation of colonies have been applied internationally in several cases, often with success, and should, of course, be considered as a potential conservation measure for the Mediterranean monk seal in Greece. Given however the fact, that the knowledge needed for the success of such programmes does not presently exist and that human intervention is substantial compared to other measures, they should be considered as last solutions. In addition, before such programmes are initiated, strict scientific, technical, and financial criteria must have been established relative to the origin, age and genetic structure of the initial population, the suitability of the region and the extent and the goals of the project. The evident ultimate goal of such programmes, namely the release of animals in their natural habitat and their conservation, makes imperative the effective implementation of all the previously described measures and should not be considered independently from them.