

THE MEDITERRANEAN MONK SEAL IN TURKEY : A SURVEY

Didier MARCHESSAUX *

Résumé : Le phoque moine de la Méditerranée, *Monachus monachus*, est une espèce gravement menacée de disparition dans toute son aire de distribution qui englobe la Mer Noire, tout le bassin méditerranéen et la côte Nord-Ouest de l'Afrique de Gibraltar en Mauritanie dans l'Atlantique. La principale population de phoques en Méditerranée est localisée en Mer Egée, à la fois sur les côtes grecques et turques.

Une mission a été effectuée en Turquie, pour le compte de l'IUCN et de l'UNEP, en juin 1987, pour évaluer le statut du phoque moine et les problèmes de conservation.

La population de phoques moines des côtes turques a fortement régressé au cours des cinq dernières années et il apparaît que l'espèce est au bord de l'extinction en Mer Noire, dans la Mer de Marmara et sur la côte Sud méditerranéenne de la Turquie. Une population, fragmentée en groupes ou métapopulations, se maintient sur les côtes égéennes. Ces métapopulations sont très vulnérables, principalement en raison de leur faiblesse numérique et de la pression résultant des activités humaines auxquelles elles sont soumises. La population de phoques moines en Turquie compte probablement entre 50 et 100 individus.

Il apparaît que la définition et la mise en place d'un programme de conservation soient urgentes pour arrêter le déclin du phoque moine en Turquie. Une analyse des problèmes liés à sa conservation effective sur les côtes turques est développée, et des propositions concrètes en vue d'améliorer la situation sont faites. Ces propositions s'inscrivent dans le cadre du Plan d'Action pour la Conservation du Phoque Moine préparé par l'IUCN et l'UNEP.

Abstract : The Mediterranean Monk Seal, *Monachus monachus*, is a highly endangered marine mammal throughout its geographic range which extends over the Black Sea, the Mediterranean and the Northwest coast of Africa, down to Mauritania in the Atlantic. The largest population in the Mediterranean occurs in the Aegean Sea, both on Greek and Turkish coasts.

The present work was commissioned by IUCN and UNEP in an attempt to fill gaps in knowledge on the status of the Monk Seal in Turkey and was performed in June 1987. Its main goals have been to gather data on current distribution and status of Monk Seals on the Turkish coasts, and to review conservation perspectives with Turkish officials and other appropriate individuals.

The population of Monk Seals on the Turkish coasts has been severely reduced and it appears that the species is on the verge of extinction, if not already extinct, in the Black Sea and in the Marmara Sea. It is also on the verge of extinction on the southern Mediterranean coast of Turkey where it is only reported in one locality. Monk Seals still occur in scattered localities on the

* Parc National de Port-Cros, 50, avenue Gambetta, 83400 Hyères, France.

Aegean coast where they form local metapopulations. The survival in the future of these metapopulations seems rather bleak in the absence of an implemented conservation strategy. It is estimated that between 50 and 100 seals still survive in Turkey.

An analysis of the major constraints to Monk Seal conservation is given. Conservation perspectives are discussed and recommendations are given to improve conservation of the species in Turkey. These recommendations are in accordance with the goals of the IUCN/UNEP draft Action Plan for the Conservation of the Mediterranean Monk Seal.

1. INTRODUCTION

The Mediterranean Monk Seal, *Monachus monachus*, is a highly endangered marine mammal (IUCN, 1986) whose world population lies probably in the low hundreds. Strong interest in the fate of the monk seal by a number of international bodies (IUCN, WWF, UNEP, BEC), governments, local environmental NGO's and scientists have already resulted in the elaboration and funding of some local research and conservation programmes in the last decade. New developments are currently underway with the preparation of an Action Plan for the conservation of the Mediterranean Monk Seal through joint efforts of IUCN and UNEP (IUCN/UNEP, 1987 a & b). However, the definition of a conservation strategy is hampered by the lack of reliable data on population biology, as well as good information on actual distribution and status of populations in many Mediterranean countries.

The largest population of Monk Seals in the Mediterranean occurs in the Aegean sea, which is therefore a key region for conservation. Monk seals are found both in Greek and Turkish waters in the eastern Aegean. Some studies were made in Turkey at the end of 1970s and at the beginning of the 1980s but little recent information is available. The present work was therefore commissioned by IUCN and UNEP in an attempt to fill gaps in knowledge and was performed in June 1987.

The main goal of this work has been to gather data on current distribution and status of monk seal on the Turkish coasts (Fig. 1), with a special emphasis on the Aegean coasts, where visits have been made in fishing villages and in areas where seals are said to occur. Discussions about Monk Seal conservation have been held with officials from the governmental agencies in charge of wildlife conservation, with a number of marine scientists, and with the Turkish Wildlife Society which is the only active environmental NGO in Turkey.

The present report outlines the known distribution and population level of the Monk Seal in Turkey. It also discusses the conservation perspectives and gives recommendations to improve Monk Seal conservation in Turkey.

2. GENERAL BACKGROUND INFORMATION

A few reports on distribution and population status have been produced for Turkey in the last twenty five years. The first report dealing specifically with the Monk Seal along the Turkish coasts appeared in 1964 (Mursa'oglu, 1964), and gives a preliminary sketch of the species distribution. Further information was given in Ronald and Healey (1974). However, the first detailed studies on distribution and population status

were carried out in the late 1970s by Berkes and his team (Berkes, 1982; Berkes *et al.*, 1979). These studies were undertaken through grants from WWF for IUCN/WWF Project 1118 : Monk Seal Conservation, Turkey. They resulted in the production of the first comprehensive account on Monk Seals on the Turkish coasts. This project also supported the field studies of Professor B. Mursaloglu who carried out behavioral work on a group of seals using a cave in the area of Alacati, southwest of Izmir (Mursaloglu, 1984 & 1986).

Although some information on distribution and status was reported verbally by Mursaloglu at the Second International Conference on the Monk Seals at La Rochelle in 1984 (see Ronald & Duguy, 1984), no written account of recent information has been made available since the pioneering work of Berkes.

3. DISTRIBUTION AND STATUS OF MONK SEAL IN TURKEY

3.1. Ecological factors influencing distribution : an overview

Providing an accurate account of the distribution and population status of the Monk Seal, as with many other marine mammals, is problematic, because of unverified assumptions used in providing estimates. There are also limitations arising from technical difficulties faced when estimating the population of an elusive and rare species, with a high mobility, and which displays unpredictable movements. The nature of its habitat (caves) and the patterns of its use impose further restrictions. Only recently, have more reliable techniques (Harwood, 1987) been designed to estimate local populations of seals, but these are costly and time-consuming before sufficient data can be accumulated to draw reliable conclusions. Most of the surveys conducted to date have mainly relied on information provided by fishermen and other informants, which clearly needs to be assessed very carefully.

It is considered appropriate to briefly discuss here some ecological characters of the species that are relevant to the estimation of population sizes.

The author has made the central assumption, based on the results of the studies of Harwood (1987) and Matsakis (1985) in Greece, that the actual population of *Monachus monachus* in the Aegean is made up of a number of semi-autonomous sub-populations with limited interchange (metapopulations in the terminology used by Harwood [1987]). There is now sufficient evidence showing that an individual's home range currently extends to 40 km of coastline and that at least some individuals perform stochastic travels of more than a hundred kilometers (Marchessaux, 1987). Within their home range, Monk Seals generally use several caves in an unpredictable pattern to haul out and rest.

The species is non-migratory, but shifts in its distribution in some regions have been reported between winter and summer. These shifts have been usually interpreted as an avoidance of the most populated touristic places by the seals during summer months. For Turkey, Berkes *et al.* (1979) states that fishermen from Bodrum and Marmaris have reported fewer sightings during summer time and thought that seals were leaving the area. Some the fishermen questioned in Foça also

told us that sightings are more frequent in winter than in summer, and that the seals leave the area during the latter period. On the other hand, fishermen from all other fishing communities visited (including Bodrum area) were of the opinion that the seals are found in their areas all the year round, and did not appear to display seasonal movements. Detailed studies are clearly needed to assess the possibility of seasonal shifts in distribution.

There is a widespread agreement among the fishermen questioned about the population trend of local Monk Seals. A decrease is reported for the last five years in five of the seven communities surveyed, while the monk seal population is said to be stable in the two remaining communities. However, fishermen from one of the latter communities report that only two seals have been present in their area for about the last five years. When asked how many seals are living in their areas, the estimates given seem strikingly low. Fishermen usually have a good sense of observation and generally have a fairly good perception of the abundance of seals in their fishing areas. However, there is evidence that their estimates are usually slightly overestimates (Matsakis, 1985; Marchessaux, 1987). Nevertheless, the very low estimates by local fishermen is no doubt an indication of the dramatic decline in status of the Monk Seal on Turkish coasts.

It would probably be arbitrary to make a specific distinction between the Greek and Turkish populations of Monk Seals in the eastern Aegean since a number of Greek islands (Lesbos, Samos, Chios, Kos and Kastellorizon) are located only a few miles from the Turkish coasts. It is likely that some of the metapopulations are established over a home range extending both to Greek islands and stretches of the Turkish coastline.

3.2. Results

The distribution and status of the Monk Seal are reviewed for the following four major areas of Turkey : (i) Aegean Sea, (ii) Mediterranean Sea, (iii) Marmara Sea and (iv) Black Sea. The distribution of Monk Seals in the different areas is shown on Figure 2.

(i) Aegean sea : The main population of monk seals occurs on the Aegean coast from Canakkale in the North, at the western end of the Dardanelles straight, to Kas in the South.

Monk seals are still found in the following areas from north to south :

— Mouth of Dardanelles to Cape Baba, including the shores of the islands of Gökçeada and Bozcaada. A tentative estimate of the number of seals occurring in this area is around 10 individuals (S. Coscun, pers. comm.).

— Peninsula of Ayvalik and nearby islands (Perema, Alibey, Ciplakada) to Foça. A tentative estimate of the number of seals for this area is 3-5 individuals (S. Coscun, pers. comm.). The birth of a pup in autumn 1986 is reported by fishermen from Foça ; fishermen have also reported several sightings in the last three months.

— Cesme to Seferihisar. A tentative estimate of the number of seals is around 10. This area probably offers the best prospects for the

survival of the species, since local fishermen do not harass seals : they believe that seal harassments bring bad luck. The birth of two pups in one cave has been recorded in 1986 (S. Coscun, pers. comm.). Fishermen report frequent sightings in this area, and the strong seal odour noted in two of the caves visited is an indication of the recent use of these caves. Confirmation of recent use was given by the fishermen accompanying us, who reported three sightings within one week.

— Dilek peninsula National Park : 2 Monk Seals are said to use remote caves at the western end of the peninsula. A warden of the park has indicated that sightings are made from time to time all around the year at the entrance of caves. The warden has indicated that each indi-

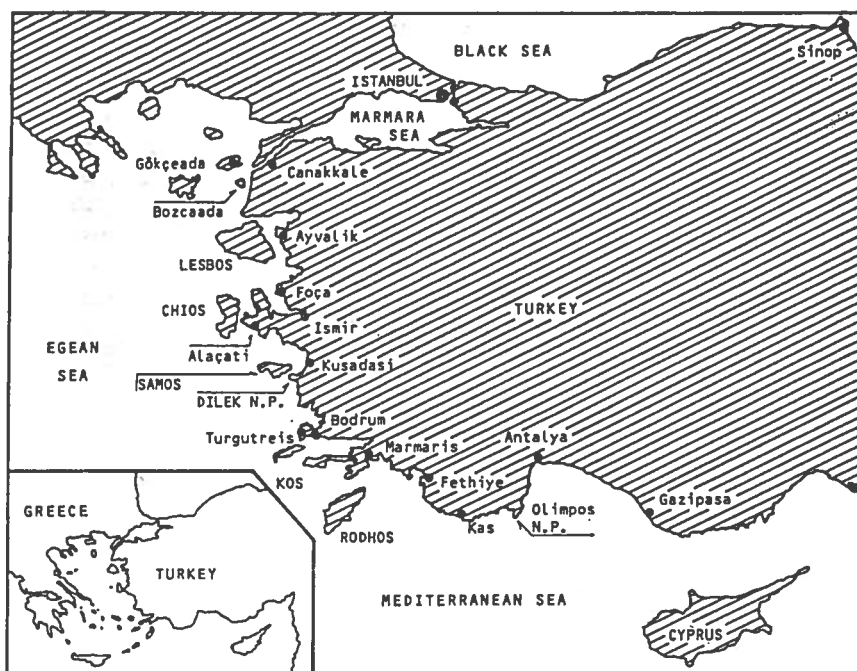


Figure 1 : Map of Turkey displaying localities cited in the work

vidual has a distinctive color pattern allowing identification. It should be noted that Dilek peninsula is less than one mile from the Greek island of Samos where sightings of seals are reported as rare events nowadays. This provides further indication of collapsing Monk Seal population in this region.

— Bodrum peninsula : A tentative estimate of the number of seals living on the shores of Bodrum peninsula is around 5 (S. Coskun, pers. comm.). Sightings are usually made on the western end and northern coast of the peninsula in the vicinity of the villages of Turgutreis, Yalıkavak and Türkbükü, and near caves on the southeast coast close to Oren. Sightings less than three months old are reported by local fishermen. A visit on a small island, where a cave is said to be often used by seals, did not show any sign of recent occupation.

— Daracya peninsula : A few seals ([10] are said to live on the southern coast of this peninsula southwest of Marmaris (S. Coskun, pers. comm.).

— From Fethiye to Kas : About 5 seals are estimated to live and use caves in an area extending from cape Yedi to cape Ulu (S. Coskun, pers. comm.). The Greek island of Kastellorizon is very close to this coast. This island is known to be frequented by seals. According to a reliable informant, a sighting of 5 seals was made in a cave in autumn 1985, and seals are also regularly observed on the coasts of this island (Marchessaux, unpub. data). Therefore, it may be possible that the above figure is incomplete and underestimates the actual metapopulation of seals in this area.

The current distribution of *Monachus monachus* along the Aegean coasts generally matches the distribution map given by Berkes *et al.* (1979), although it is now reduced as a result of increased patchiness through depletion of the population.

(ii) Mediterranean Sea : Today, the regular occurrence of seals is reported from only one locality on the Mediterranean coast between Antalya and the Syrian border. A group numbering less than 10 Monk Seals is said to use three caves near Gazipasa (S. Coskun, pers. comm.). The apparent collapse of the Monk Seal population on this coast is rather surprising since the number of coastal fishermen is lower than on the Aegean coast. Possibly, other factors may be responsible for the observed decline.

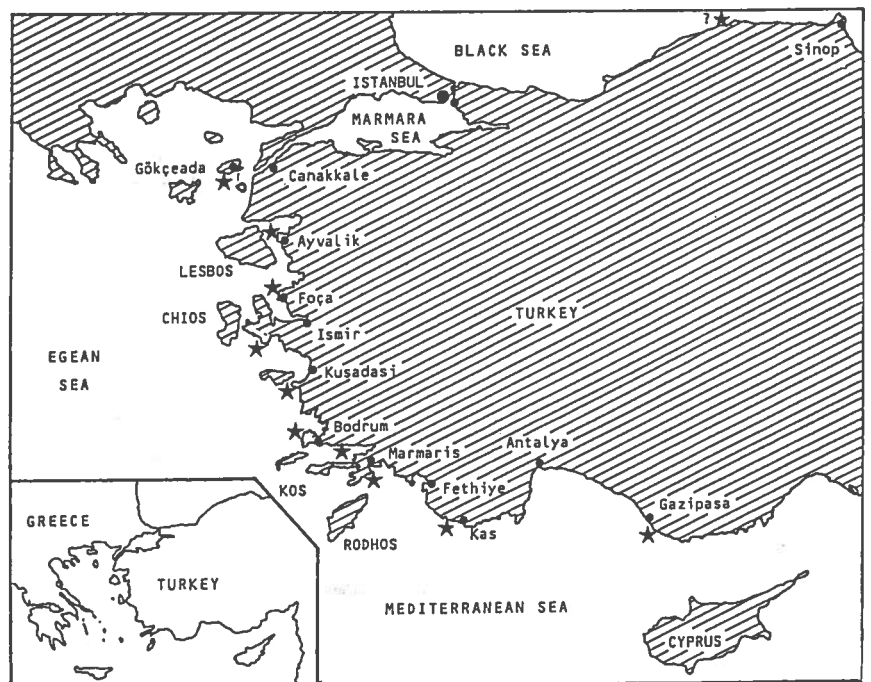


Figure 2 : Distribution of the Monk Seal on the Turkish coasts.

(iii) Marmara Sea : It is likely that the Monk Seal here is extinct. Its last place of occurrence was reported on the south-west coast and nearby islands in the area of Kapidag peninsula. Recent searches done by our main informant (S.K.) to find evidence of the occurrence of Monk Seals were negative.

(iv) Black Sea : The Monk Seal appears to be on the verge of extinction on the Turkish coast of the Black Sea. Our main informant (S.K.), who has searched very recently for seals on this coast, even thinks that the species is now definitely extinct in this area. Another source points to the persistence of a small group of seals using a few caves on the coast between Zonguldak and Sinop (T. Gurpinar, pers. comm. 09/1986). A recent sighting of a seal in the Bosphorus two months ago (N. Yazgan, pers. comm.) may also indicate that a few Monk Seals still occur in the Black Sea.

In summary, the current population of Monk Seals on Turkish coasts is estimated to be between 50 and 100 individuals, unfortunately probably closer to 50 than 100.

3.3. Reasons of Decline

The main threat for Monk Seals is undoubtedly related to their interactions with commercial fisheries. A majority of fishermen see the Monk Seal as a pest that should be eradicated. 76 % of fishermen questioned (n = 39) think that the Monk Seal is a misfortune for their livelihood. The fishermen, complaining of damage to their fishing gear and capture of fish from their gear, are the artisanal, coastal fishermen. They operate boats with a crew of 2-4 men and use set nets to catch demersal species. It is interesting to note that fishermen still bear a grudge against seals in an area (Kusadası) where they claim that they have been driven to extinction for the last five years. On the other hand, fishermen from another area (Alacati), where seals still occur do not display spite against them. This difference of behavior results from regional difference in popular beliefs, as mentioned earlier.

Fishermen report very few cases of fatal entanglement of seals in fishing gear. A case was reported in 1986 near Foça. However, fishermen may be wary of admitting that seals are drowning in their nets, and they are unlikely to report deliberate killing of seals because of fear of prosecution.

Another potential threat comes from the habitat degradation through increasing touristic development in many areas, which may drive away the seals. In addition increased commercial fishing by large trawlers may be causing depletion of fish stocks and consequently may be indirectly responsible for the decline in Monk Seal. It is, however, difficult to assess the true impact of these threats.

4. CONSERVATION STATUS OF THE MONK SEAL IN TURKEY

The Monk Seal has been legally protected in Turkey since 1977 and hunting and captures are prohibited. However, enforcement of the law has never been effective and some deliberate killings of seals by fishermen and others have been reported for the last five years.

The governmental agency in charge of wildlife management is the Directorate of National Parks of the Ministry of Agriculture and Forestry. This directorate is responsible for the management of national parks and also for the conservation of protected species. The Directorate of Aquatic Products of the Ministry of Agriculture is apparently involved in Monk Seal conservation, since it deals with all marine conservation matters in Turkey. However, it appears that this directorate is mostly concerned with the management of commercial fisheries. Another governmental body involved in Monk Seal conservation is the General Directorate of Environment, which is affiliated to the office of the Prime Minister. The General Directorate of the Environment coordinates conservation programmes in Turkey, is in charge of the Blue Plan and is also the Focal Point for UNEP Programmes.

The Directorate of National Parks is in charge of the management of the two national parks (Dilek Peninsula and Olympos), and also responsible for reserve (on Kapidag peninsula) that is attempting to improvise Monk Seal conservation. The two national parks both have a coastal protected area of 200 m wide, extending for a length of 18 km along the coast for Olympos Park and for about 50 km along the coast for Dilek Peninsula Park. Commercial fishing is banned inside these protected areas. The Monk Seal does not appear to have benefited from these protected areas in the past because of management problems. Moreover, it seems that the species is no longer living in the coastal area of Olympos Park.

5. MAJOR CONSTRAINTS TO MONK SEAL CONSERVATION IN TURKEY

Governmental and scientific institutions are aware of the plight of the Monk Seal along the Turkish coasts but do not seem to perceive the urgency of the situation. There is no conservation policy for this species with the exception of legal protection. Numerous discussions revealed the major constraints most relevant to Monk Seal conservation. The main constraints and difficulties include :

— Weak linkage between conservation and development. Conservation measures of coastal ecosystems are not seen as contributing to development, and are even considered to curb development by some people working in governmental agencies. Furthermore, three different agencies are responsible for Monk Seal conservation activities. However, there appear to be difficulties in coordination, which is hampering the definition of a clear conservation strategy.

— Lack of implementation and enforcement of the law protecting the monk seal.

— Growing economic pressures which encourage short-term economic benefits from utilization of natural resources, for example encroachment of habitat used by Monk Seals. The Policies, especially on tourism and fisheries development, encourage increased exploitation of the coastal areas by building of new infrastructures for tourism and an increase in fishing activities.

— Insufficient awareness of Monk Seal conservation issues among marine scientists or biologists, mainly in universities, which display little interest in Monk Seal research and conservation. The reasons for

this lack of interest stem partly from the actual research policies of the universities.

— Insufficient support for the only active environmental NGO : the Turkish Wildlife Society. The TWS has a highly motivated staff, but lack of resources and motivated personnel to support a public awareness campaign.

6. CONSERVATION PERSPECTIVES FOR THE MONK SEAL IN TURKEY

Several objectives and actions can be recommended to improve the situation and help save the animal from extinction. These objectives and actions at a national level could provide the basis for a regional strategy for the conservation of the Monk Seal as recommended in the draft Action Plan for the Conservation of the Mediterranean Monk Seal (IUCN/UNEP, 1987a).

Objective 1. To promote the development and integration of a conservation policy for the Monk Seal.

It seems desirable to encourage the Turkish government to develop programmes of research and conservation. Among the first measures that should be taken to facilitate the process are :

The appointment of a single governmental agency in overall charge of the defining a national conservation policy for the Monk Seal and with authority to actually implement it.

The inclusion of Monk Seal research in the research programmes drawn up annually by the government for universities. This measure should help stimulate a larger interest in Monk Seal research within the scientific community.

Implementation of the law protecting the Monk Seal. Local authorities should be given instructions to enforce the law and publicize it among the fishermen.

Objective 2. To implement integrated conservation measures in a few key areas identified as being of particular concern.

Under this objective, it is recommended that three pilot studies on population biology of seals and interactions with fishermen be set up. The results of these studies should allow a better understanding of the local threats to Monk Seals. These studies need to be undertaken in close cooperation with local fishermen to ensure that conservation measures proposed are agreed by the local fishing communities and are likely to be beneficial to fishermen, conservationists and other interested parties. The highest priority for these pilot studies is the Alacati area, where it would be desirable to establish a specially protected area. Others suitable areas are the island of Gökçeada, in the northern Aegean, and Kas region in southern Aegean. These studies could possibly be integrated in the draft Action Plan for the Conservation of the Mediterranean Monk Seal (IUCN/UNEP, 1987a).

To investigate for the occurrence of seals on the shores of the areas already protected and to set up a monitoring system to assess the status of seals in these areas. The data recorded should allow improved management of these protected areas.

Ojective 3. To promote education and public awareness.

An awareness campaign should be promoted in selected places along the Aegean coast. Support from the media, such as the national TV could greatly help for the implementation of this campaign. It would be beneficial to involve the Turkish Wildlife Society in this action.

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