

## HUMAN IMPACTS ON ECOLOGICAL HERITAGE - Mediterranean Monk Seal in Cilician Basin -

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### ABSTRACT

As a direct consequence of the human impacts on Mediterranean, inhabiting populations of certain species have suffered from a dramatic decline. The most striking example is the monk seal *Monachus monachus*, (Hermann, 1779) which used to be common on the Mediterranean coast but is now one of the most endangered species. There are several factors carrying Mediterranean monk seals to the level of extinction, such as;

- Habitat loss
- Fish stock depletion (as the food source of the monk seal)
- Intentional slaughter by fishermen
- Pollution

The Cilician Basin, which is the strait between Cyprus and the Turkish mainland, Anatolia is one of the last regions of the Mediterranean where a considerable monk seal population, still sustaining reproductive abilities, inhabits. In this study, main habitats of this species on the Cilician coasts are spotted and the main factors adversely affecting the population are mapped along with the recommendations for protection measures specifically pertinent to this region

### INTRODUCTION

Within the last 3-4 decades, number of individuals in the monk seal population of the Mediterranean decreased drastically. Consequently the monk seal has been one of the most endangered mammals of the world. The Cilician Basin is situated in the northeast Mediterranean Sea and lie between the Turkish mainland (Anatolia) and the Cyprus. The status of the monk seal population inhabiting Cilician coast is no different than that of other parts of the Mediterranean. Habitat loss, overfishing and deliberate killings are common phenomena like elsewhere. Sudden decline in the population size is evident from population estimates of various authors. Between 1976-1978 Berkes et al. (1979) estimated 150-300 monk seal inhabiting Turkish coasts, in which 35 individuals were reported for Mediterranean coast of Turkey, whereas nearly ten years later, Ozturk (1992) pointed out an abrupt decline and reported 20 to 50 individuals on Turkish coasts. In this total, only 8 individuals were reported to inhabit on the Anatolian coast of Cilician Basin.

The aim of the present work is to uncover and map the major threats confronted by seals in the Cilician Basin.

### METHOD APPLIED

The reveal the threats on Mediterranean Monk Seals of the Cilician Basin, a coastal survey has been accomplished in June 1994. All coastal strip along the Turkish coast of Cilician basin and Northern Cyprus have been visited. During surveys beside our own observations local people and especially fishermen were interviewed.

### RESULTS AND DISCUSSION

The major threats for the Mediterranean monk seal of the Cilician basin are classified as follows;

- 1) **Habitat loss:** Due to development in tourism and intensive urbanization, suitable habitats for the monk seals are being destroyed. This factor takes the first place in importance in the area near to Mersin, where recent sightings are very seldom. Moreover, in regions which are formerly inhabited by monk seal and recently subjected to habitat loss, has been abandoned or inhabiting seals reduced dramatically.
- 2) **Overfishing:** The fish stocks of the region, which is the only fish source for the monk seals are being depleted by ever increasing fishing power (Gucu and Bingel, 1994). Illegal fishing, such as usage of explosives, and trawling in banned coastal zone is another factor undermining fish stocks. This factor is a common phenomena all over the basin, including Cyprus.
- 3) **Deliberate killing:** Along the basin, monk seals are ranked high among pests of the fishermen, others being dolphins and marine turtles. Therefore deliberate killings by the fishermen is quite significant along the Turkish coast and in Aydinlik region attained to a level of slaughter.
- 4) **Heavy Sea Traffic:** Habitats near to harbors are being subjected to stressing effects of heavy sea traffic. This factor seems effective in Mersin and Tascucu, where international harbors are located.
- 5) **Industrial, Agricultural and Domestic Pollution:** Especially near to the big cities, such as Mersin, industrial, agricultural and domestic wastes play disturbing role on the occurrence of the seal in the area. Although not confirmed scientifically by analysis, it is believed that the high level of PAH, PCB's and insecticides (Kideys and Salihoglu, 1988; Kideys and Unsal, 1988; Yilmaz et al., 1991) will eventually influence monk seal population.
- 6) **Overall Mediterranean pollution:** Beside local pollution described above pollutants like plastics, tar balls and other floating artificial debris are accumulated even in localities away from human activities (Bingel et al., 1987). This kind of pollutants were observed basin-wide, moreover they are accumulated within the caves as well as on the beaches. In Cyprus, due to permanent anticyclonic eddy formed in the northeastern Levant Sea, huge amount of debris is deposited and fills the caves where nearly all phases of reproduction take place.

## CONCLUSION

As a results of the study aiming to highlight dangers confronted by the Mediterranean Monk Seals inhabiting Cilician Basin, it was observed that monk seal population of the area has reached to the level of extinction. The "habitat loss" in the area is the main factor paramount in effect, others being overfishing and deliberate killing. The only solution to the problem is to establish effective protection measures, such as establishing local SPA's and efficient control over the area. However, determination of the locations of SPA's were not within the context of this study. Therefore, basing on the distribution of major threats uncovered in this study, suitable areas for SPA's should immediately determined and established.

A "two-phased" protection strategy may be relevant to relieve fishermen vs. seal interaction and partly to mitigate food sources of seals. In the first phase, which is an immediate one, to compensate the net damages caused by the seal, small-scale professional fishermen have to be subsidized such as by providing net or fuel with reduced price, etc. Next phase is to stop illegal and large-scale fishing activity in the region and to enforce more effective control over the near coastal zone. In this way, the

stock recovery can be achieved. The income of the fishermen and food source of the monk seal can increase to a level facilitating coexistence of the counterparts.

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