

PROTECTION OF THE MEDITERRANEAN MONK SEAL (*MONACHUS MONACHUS*) AND ITS HABITATS

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Abstract

The Mediterranean Monk Seal (*Monachus monachus*, Hermann 1779) is one of the world's most endangered mammals. Our research was aimed at: obtaining information from the local fishermen in the Croatian and Albanian part of the Adriatic Sea and of the Ionic Sea on sightings of the Mediterranean monk seal, and investigating its habitats in these areas. We have investigated 19 habitats in the Reza e Kanalit area of the Ionic Sea and 18 habitats in the Vis archipelago in the Adriatic Sea. Legislative measures for the protection of the Mediterranean monk seal were not adequately effective to enable preservation of this species in the Adriatic and Ionian sea .

Keywords: Adriatic Sea, Ionian Sea, islands

Introduction

The Mediterranean monk seal (*Monachus monachus* Hermann, 1779) used to be wide spread throughout the Adriatic Sea but today is very rare in this area (1). It is presumed that 350 specimens are present in the Mediterranean area. Only a few individual specimens were observed recently, passing by the outermost Croatian islands. Biology and population ecology of this endangered marine mammal in the Croatian part of the Adriatic Sea have not been extensively studied (2).

The aim of this study was to investigate habitats known to have been visited by the Mediterranean monk seal in the Adriatic and Ionian Sea. The local fishermen are an important source of information on the presence of the monk seal and its habitats. This study includes important data for evaluation of habitats in natural caves and beaches which might be used by the Mediterranean monk seal. We expect that this investigation will contribute to the protection of the Mediterranean monk seal and its habitats, increase of awareness of the importance of this action and provide general knowledge on this topic.

Materials and methods

Two approaches were used in this investigation. The first was interview with the local fishermen and the second included examination and measurements of the monk seal habitats. It was necessary to conduct a carefully planned interview according to a specific questionnaire with the local fishermen, 40 or more years of age, in selected areas of the Adriatic and Ionian sea. The interview was aimed at obtaining reliable information on sightings of the monk seal, number of specimens observed, number of fishermen involved on that occasion, behaviour of the monk seal, extent of damage on the fishing gear caused by the monk seal, and fishermen's attitude toward the monk seal. The interviewing comprised 44 fishermen from Komiza, island of Vis.

The interview provided also information on known habitats of the monk seal in these areas. These sites were visited and examined in the Vis archipelago and Ionian Sea, Reza E Kanaliti, in the period 1994 -1999.

Some of the habitats i.e. caves had entrances below sea level which required diving. Measurements were taken and maps of caves created according to speleological methods. The caves were also photographed, and entrance exposure determined by compass.

Caves were inspected for signs of monk seal's presence e.g. impressions of a large body in sand, smell of urine and findings of faeces which could originate from the monk seal.

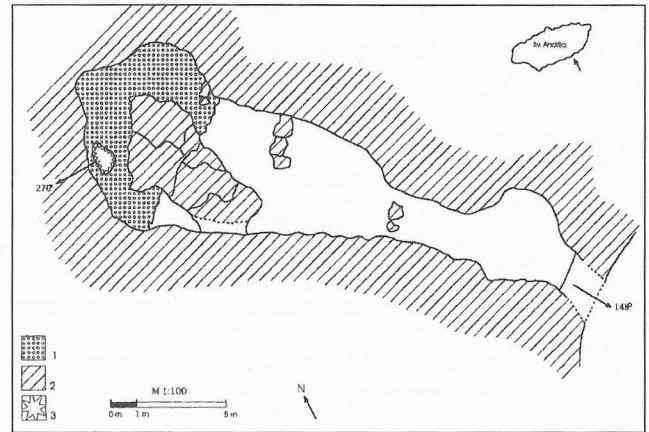
Results and discussion

According to the reports on sightings received and interviews with the fishermen the Mediterranean monk seal is only rarely present in the Vis archipelago in the last two decades. Conditions were not always in favour of the Mediterranean monk seal and its habitation requirements. The island population and its dependence upon fishing has decreased, but the marine traffic has intensified. Major obstacles for the return of the Mediterranean monk seal are not only reduction in the amount of fish but rather lack of ecological consciousness, public awareness and most of all very intensive marine traffic.

This study comprised examination of 18 caves and 2 shingle beaches in the Vis archipelago in the Adriatic and 19 caves in the Reza E Kanaliti region in the Ionian Sea. The habitats indicated by the fishermen during the interviews are mostly secluded flat rocks or shingle beaches surround by steep rocks. Most of these caves were formed in dolomite and limestone during Flandrian transgression, partly flooded by sea, and shaped by collapsing and sea erosion (Fig 1).

The entrances to the caves were from land, at or below the sea level, depending on the location. Caves in the Reza E Kanaliti region mostly have entrances at sea level or from beaches. The entrances are mostly protected from direct sunlight and wind, with south-west, south-east and northern exposure. The air temperature was similar in all caves at that time of the year and with abundant light. Clear evidence of the presence of the

monk seal was found in some caves i.e. impressions in the sand corresponding to a large body and excrement.



Map of the cave Tovorski bod, island of Sveti Andrija in the Vis archipelago (ground plan - a, cross-section - b). The legend indicates: 1 = shingle beach, 2 = limestone flat rock, 3 = entrance from land.

No human settlements were located in the vicinity of the investigated caves and can thus be considered as possible habitats for the return of the monk seal. None of the habitats investigated have been changed due to human activity or earthquake. The shingle beaches are less suitable due to increased marine traffic, and would need to be protected as marine parks.

Conclusions

The investigated areas of the Vis archipelago and Reza E Kanaliti have well preserved former habitats of the monk seal. There is also evidence of its presence in the past and occasional sightings recently in this area. This points to favourable environmental conditions for the return and repopulating of the Mediterranean monk seal in this region.

Nevertheless, measures for protection of the monk seal and its habitats need to be more closely conducted and controlled, including continuous efforts oriented towards education of the local population on the problem of this endangered species.

Acknowledgement

This research would not be possible without the support and full collaboration of the local fishermen. The authors gratefully acknowledge the assistance of Vlado Antolovic for help during field research.

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