

Assessment of Mediterranean monk seal (*Monachus monachus*) habitat at La Galite, Tunisia: towards a monk seal conservation strategy in northern Tunisia and nearby waters

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The last thirty years have seen the rapid decline of the remaining nuclei of Mediterranean monk seals (*Monachus monachus*) in the western Mediterranean Sea. Today, known nuclei are present along many portions of the Turkish and Greek coastlines where the population is estimated to range between 150-250 individuals (Reijnders 1998a). Areas of the western Mediterranean coastlines are believed to be almost devoid of seals, at least in terms of actively reproducing nuclei, but the hypothesis still persists that small scattered groups or individuals may survive despite the intense deliberate killings in this past century (Aguilar, 1998). The IUCN has estimated the total Mediterranean basin population to range around 300 individuals and prevailing views are that the conservation and recovery of small groups and even single individuals, is crucial if recovery action is to be taken towards this species (Reijnders, 1998b). The presence of small numbers of monk seals in the western portion of the Mediterranean is a reality that should be addressed and actions should be undertaken to establish the distribution range of the remaining individuals inhabiting this region, their eventual seasonal patterns of presence and displacement, and the consequent conservation measures necessary to guarantee their survival and their successful reproduction.

Consistent monk seal presence in Italy and Tunisia is reported until the early 1980s (Marchessaux, 1987). After this date the number of undocumented reported sightings is apparently absent in Tunisia although this could be masked by the absence of a detailed survey, the last of which was conducted in La Galite by D. Marchessaux in 1986. A collaboration scheme was therefore set up between RAC/SPA (Regional Activity Center for Specially Protected Areas, Tunis), ICRAM (Istituto Centrale per la Ricerca scientifica e tecnologica Applicata al Mare) and the Tunisian authorities, to begin assessing monk seal presence in northern Tunisia. Similar initiatives have recently been supported by UNEP RAC/SPA in other regions of the Mediterranean with the objective of identifying and localizing monk seal shelters and verifying the existence of monk seals in the relative study areas (UNEP 1997, UNEP and Elliniki Etairia 1995). The collaboration focuses on the La Galite Archipelago which not only represents a site known to have been historically inhabited by the Mediterranean monk seal but also a central point for starting up an assessment on monk seal presence in the larger area of sea encompassing the Tunisian-Italian waters, an area characterized by sightings during the last decades and likely to be still inhabited by the Mediterranean monk seal. The collaboration aims to:

- 1.) determine and document the suitable coastal habitat available for the Mediterranean monk seal in the Archipelago of La Galite as groundwork for future application of non-invasive monitoring methods of the area.
- 2.) assess the incidence of recent monk seal presence in Tunisian waters, with particular attention to the Archipelago of La Galite, through specific surveys on fishermen.

- 3.) initiate a local sensitisation campaign aimed at tourists to ensure awareness and better protection of monk seal individuals, thus reducing disturbance, at La Galite Archipelago.

A 15-day survey was conducted during July 2000 with the aim of aquatically inspecting all stretches of rocky coastline present at La Galite archipelago in order to locate suitable monk seal shelters and to graphically and photographically describe them. Unlike previous studies, this investigation was conducted by swimming and visually inspecting all stretches of coast based on a methodology similar to that used to map marine caves in eastern Sardinia (WWF-Italy 1995). Caves that had been hypothesized to exist by Marchessaux (1987) on the north-eastern coast of Galiton were confirmed to be non-existent. Moreover, two very interesting and well-protected underwater access caves that had been alluded to by Merlo (1967) but that had not been described by Marchessaux (1987) were located, identified and graphically described. Seven of the sixteen caves appear to be particularly suited as sites for a medium to long-term haul-out by the monk seal due to their physical characteristics which allow good protection from marine and human exposure. Given the recurring monk seal sightings reported during the last two decades in areas of south-western Italy, which may be related to individuals surviving in the wider north-African region (nearby coasts of Tunisia and Algeria), and considering the pristine marine habitat present at La Galite, the suitable coastal habitat identified in the present study, and the geographical position of the archipelago with respect to the nearby Italian coasts, it is hypothesized that monk seal individuals may, as in the past, still inhabit and use the La Galite caves.

Future activities will thus focus on enacting the proposed monitoring and awareness-building activities listed within the above described collaboration scheme. Moreover, Tunisian authorities are engaged in providing protection to the entire Archipelago through its future establishment as a national marine park and the formulation of appropriate management measures including research, management and educational activities also aimed at the conservation of the Mediterranean monk seal. Such a management plan falls in direct compliance with the actions requested by the UNEP/MAP Action Plan for the Conservation of the Mediterranean monk seal, as well as with the amended version of the Protocol for Specially Protected Areas and Mediterranean Biodiversity of the Barcelona Convention, which Tunisia has recently ratified.

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