Conservation status and priorities of the critically endangered Mediterranean monk seal *Monachus monachus* in archipelago of Madeira

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INTRODUCTION

The Mediterranean monk seal is critically endangered. The main threats include habitat loss, intentional killing and accidental entanglement in fishing gear[1]. In the archipelago of Madeira (Madeira, Porto Santo, Desertas and Selvagens Islands) there is historical evidence of seals only at Madeira, where seals were once abundant[2]. However, in 1988 there were only 6-8 seals remaining at the Desertas Islands[3]. In 1989 the Parque Natural da Madeira Service (PNMS) initiated a Conservation Programme and in 1990 the Desertas Islands were declared a Nature Reserve. Efforts to protect the monk seal included the protection of the species and its habitat, scientific research and public awareness. The aims of this study were to record distribution, relative abundance, and basic demographic parameters of the species in the archipelago in order to assess its current conservation status and identify priority protection and management actions for the future.

METHODS

Seals were monitored at the Desertas Islands using a non-invasive method, based on the direct observation of seals from 6 lookout-sites or while navigating by boat around the islands.

Assessment of the population status at Madeira, Porto Santo and the Selvagens Islands was based on circumstantial reports of sightings received by PNMS. An effort to systematically collect these was initiated by PNMS in 2002 when a Monk Seal Information Network was established.

Figure 1 – Madeira and Desertas Islands with the locations of the six lookout-sites (●) and the locations and numbers of monk seal sightings recorded during the study.

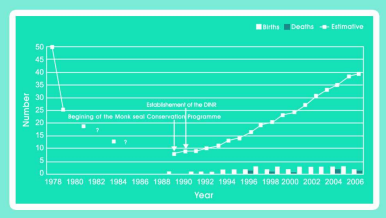

Figure 2 – Population estimates before and during the conservation programme and annual number of births and deaths recorded.

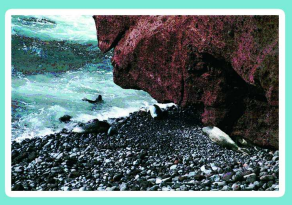

Figure 3- Hauling out on open beaches, which was common to this species in the past[2] and is now rarely observed throughout its range, is frequently observed within the DINR. The reacquisition of this behaviour is considered to be a result of the ongoing conservation measures.

RESULTS & DISCUSSION

Desertas Islands

Distribution: During the 13099 hours of observation effort (1992-2005), 1258 sightings were recorded (Figure 1, average group size=1.7; maximum number of seals observed=9). **Population size:** Four black males, 6 large-sized seals (from which, 5 were reproductive females), 1 medium-sized seal and 3 juveniles were identified. The population is increasing (Figure 2) – annual birth rate increased significantly ($r2 = 0.759$, $F = 47.120$, $P < 0.005$). All 5 deaths recorded were due to natural causes. **Behaviour:** From 1997 on, seals were seen occupying open beaches (Figure 3).

Madeira, Porto Santo and Selvagens Islands

Distribution: 389 seal sightings were recorded (Figure 1) (1989-2005 - 87% occurred from 2002 on). Sightings of monk seals at Madeira, which were rare in the recent past, occur now frequently. Only 2 seals were sighted at Porto Santo, while no sighting occurred at the Selvagens Islands. **Population size:** One black male and 1 large-sized seal (male) were confirmed to be resident. **Behaviour:** 36 Human/seal interactions were recorded; in several occasions seals caused damage to fishing equipment.

CONCLUSIONS

The monk seal population in the archipelago of Madeira is estimated to number 20-30 adult individuals distributed over Madeira and the Desertas Islands. The findings of the study suggest that the species remains critically endangered in the area but that its conservation situation has improved since and due to the implementation of effective conservation actions. Conservation priorities for the future include protecting suitable monk seal habitat, investigating seal–fisheries interactions, increasing environmental education and strengthening the regional legislation regarding the protection of the species.

LITERATURE CITED

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