The status of the Mediterranean monk seal *Monachus monachus* in the western Sahara and the implications of a mass mortality event

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ABSTRACT. The largest aggregation of the highly endangered Mediterranean monk seal (*Monachus monachus*) is located on the Cap Blanc peninsula in the western Sahara. Photographic identification of individuals was used in a capture-recapture analysis to estimate the abundance and composition of the colony during 1993-1998. Results of the application of these techniques to Mediterranean monk seals were satisfactory, and allowed to produce independent annual population estimates. No significant trends in abundance over the period 1993-1996 were detected, and the mean estimate for the period was 317 seals (CV=0.16; 95% CI: 237- 447). Environmental changes affecting suitability of habitat, particularly food availability, are suggested as major factors for having limited population recovery during this period. In spring 1997, a mass mortality reduced the population size to 109 individuals (CV=0.14; 95% CI: 86- 145). Mortality was age-specific and resulted in a severe change in the stage composition of the population. Adults were the most affected, and therefore the proportion of juveniles increased from an initial 12% before the event to about 29% after. As a result of both the decrease in seal numbers and the change in population composition, the number of individuals potentially contributing to reproduction fell to about 77 or fewer. This number may not be enough to maintain genetic variability and overcome the effect of demographic stochasticity. The demographic changes caused by the die-off are expected to have both positive and negative effects on the reproductive success of the colony. However, they are undoubtedly potential factors which threaten the stability and survival of the colony in the near future.

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