SPATIAL AND SEASONAL DISTRIBUTION OF HUMPBACK WHALES, *MEGAPTERA NOVAEANGLIAE*, WINTERING IN ABROLHOS, BRAZIL

by

Carla M. A. Freitas

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ABSTRACT

Abrolhos Bank in Brazil is the only known breeding ground of humpback whales (*Megaptera novaeangliae*) in the south-western Atlantic. The patterns of seasonal distribution and habitat utilisation of the species in Abrolhos were studied using data collected from vessel surveys carried out by the *Projeto Baleia Jubarte* between 1992 and 1999. The distribution of whales in Abrolhos changed over the course of the breeding season. Both at the beginning (July) and late in the season (November), when whales were probably arriving and leaving the breeding area, higher sighting rates (number of whales seen per hour) were obtained on the south of Abrolhos Archipelago than in the other areas surveyed. The similar sighting rates obtained between August and October in all areas suggest that the majority of the whales probably do not migrate further north, segregating in this shallow part of the bank. The spatial distribution of whales differed with group composition and behaviour and was found to be influenced by water depth, proximity to land and water turbidity. Groups containing a calf occurred in waters shallower and closer to Abrolhos Archipelago than did groups without a calf and were more often seen in deeper waters in July and November, to the south of Abrolhos, when they were probably arriving and leaving the breeding area. Yearlings accompanied by their probable mothers do not show the same segregation pattern for shallow waters as cow-calf groups. The protected conditions provided by shallow waters may facilitate the nursing activities and minimise energy expenditure by mothers and calves and are believed to be the main reason for the observed segregation. Whales exhibited the tail-up behaviour, a position apparently exclusive to the humpbacks breeding in Abrolhos and in Southeast Africa (Morete et al, *in prep.*), more often when in shallow waters, possibly to take advantage of protected water conditions as well. Competitive groups did not occur in waters shallower than 5m, possibly to avoid collisions with the sea bottom or coral reefs during their high energy displays at the surface. Singers were also absent in such shallow areas, where the propagation of sound waves must be poorer. Satellite-derived images on suspended sediments from SeaWiFS were analysed in order to explain the absence of humpbacks in the continental waters. The turbidity levels were found to affect the spatial distribution of the whales, which ventured to approach closer to the continental coast on days when the sediment load was lower. The use of satellite data, although never previously used in breeding grounds, can provide valuable information on oceanographic parameters that can influence the distribution of whales in breeding habitats.