

Circumpolar Foraging Habitat of the Southern Elephant Seal (*Mirounga leonina*)

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An international data-sharing approach has been used to compile all existing data of the marine distribution of a wide-ranging and elusive marine mammal, the southern elephant seal (SES). In excess of 64 000 locations have been recorded from 261 seals tracked from 1990 to 2002 by either satellite or geolocation technologies. The locations represent periods of both travel and of time spent foraging. The amalgamated dataset showed that SES distribution extended from about 40°S to the Antarctica continent at latitudes higher than 65°S. It was virtually circumpolar with a small gap between about 100°W and 120°W. Relatively few seals were tracked into deep embayments such as the Weddell and Ross Seas and Prydz Bay on the Antarctic continent. The estimated total area used by the seals was >30 x 10⁶ km² and within which there was relatively little (~5%) spatial overlap of the at-sea distributions for seals originating from different colonies. The foraging areas of the seals were densest over the Antarctic continental shelf and within the Polar Frontal Zone. Seals tracked from Peninsula Valdes were exceptional in that they remained over the Patagonian Shelf and in temperate waters, not in polar waters. Adult male and female tracks overlapped more over the Antarctic continental shelf than they did pelagically. Juvenile seals did not travel as far south, after leaving their natal colonies, as their adult counterparts. The foraging areas for many seals were located within CCAMLR administered waters where they foraged for squid and fish that may become of commercial interest. By obtaining a global synoptic view of SES distribution, we can facilitate an understanding of both the relationships between foraging behaviour and success, and large-scale biotic and abiotic oceanographic parameters that affect it.

