

Short note

Occurrence of the cephalopod *Martialia hyadesi* (Teuthoidea: Ommastrephidae) at the Kerguelen Islands in the Indian Ocean sector of the Southern Ocean

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Introduction

In the Atlantic sector of the Southern Ocean, data from vertebrate predators and commercial fisheries suggests that the distribution of the ommastrephid squid *Martialia hyadesi* is related to the Antarctic Polar Frontal Zone, but it spreads further to the north in some years (Rodhouse, in press). A mass stranding of *M. hyadesi* occurred on Macquarie Island in 1971 (O'Sullivan *et al.* 1983) suggesting that its distribution is circumpolar (Rodhouse and Yeatman 1990). However, apart from a single beak collected from the stomach of a wandering albatross at Marion Island (Imber and Berruti 1981) its presence has not, until now, been confirmed in the Indian Ocean sector and in particular it is not included in the list of cephalopods from the Kerguelenian Province (Lu and Mangold 1978).

M. hyadesi is a major prey item of the grey-headed albatross, *Diomedea chrysostoma*, and the southern elephant seal, *Mirounga leonina*, at South Georgia (Rodhouse *et al.* 1990; Rodhouse *et al.*, unpublished data) and is present in the diet of several other predators in the Scotia Sea area including the wandering albatross, *Diomedea exulans* (Rodhouse *et al.* 1987) and the giant petrels, *Macronectes halli* and *M. giganteus* (Hunter 1983). It occasionally occurs as a significant by-catch in the *Illex argentinus* fishery on the Patagonian Shelf and has been taken during commercial squid jigging trials in the Scotia Sea at the Antarctic Polar Frontal Zone (Rodhouse, in press). It appears to have potential for commercial exploitation in

the sub-Antarctic waters of the Atlantic sector of the Southern Ocean (Rodhouse 1990).

In view of the ecological importance of *M. hyadesi* to Antarctic predators, and the likelihood that it will be commercially exploited in the future, it is important to thoroughly establish its geographical range, and in particular to confirm its circumpolar distribution.

Methods and results

A single specimen of *Martialia hyadesi* was collected on 23 April 1988 aboard the Soviet trawler *KALPER* on the Kerguelen Shelf to the north of the Kerguelen Islands at 48°18.4'S, 69°48.9'W. It was taken at a depth of 140 m in a bottom trawl with an opening of 42 m and a mesh size of 80 mm. The main catch consisted of *Champocephalus gunneri* (405 kg), *Channichthys rhinoceratus* (182 kg) and *Notothenia rossii* (163 kg) and of seven other fish species (18 kg).

The specimen was a mature male. Measurements taken according to the guidelines of Roper and Voss (1983) are as follows – mantle length: 308 mm; mantle width: 66 mm; fin length: 132 mm; fin width: 186 mm; fin angle 50°; arm I: 125 mm; arm II: 139; arm III: 140 mm; arm IV: 102 mm; tentacle: 195 mm; tentacular club: 189 mm. Spermatophores were present in the penis and some had extruded into the mantle cavity. The hectocotylus on the right arm IV was better developed than in previously described specimens (Nesis and Nigmatullin 1972; Rodhouse and Yeatman 1990), with a distinct groove being present on the oral surface on the dorsal side of the dorsal row of trabeculae.

The specimen has been deposited at the Muséum National d'Histoire Naturelle, Paris (MNHN squid collection number: 2005).

Discussion

The capture of this specimen of *Martialia hyadesi* at the Kerguelen Islands, in the Indian Ocean sector of the

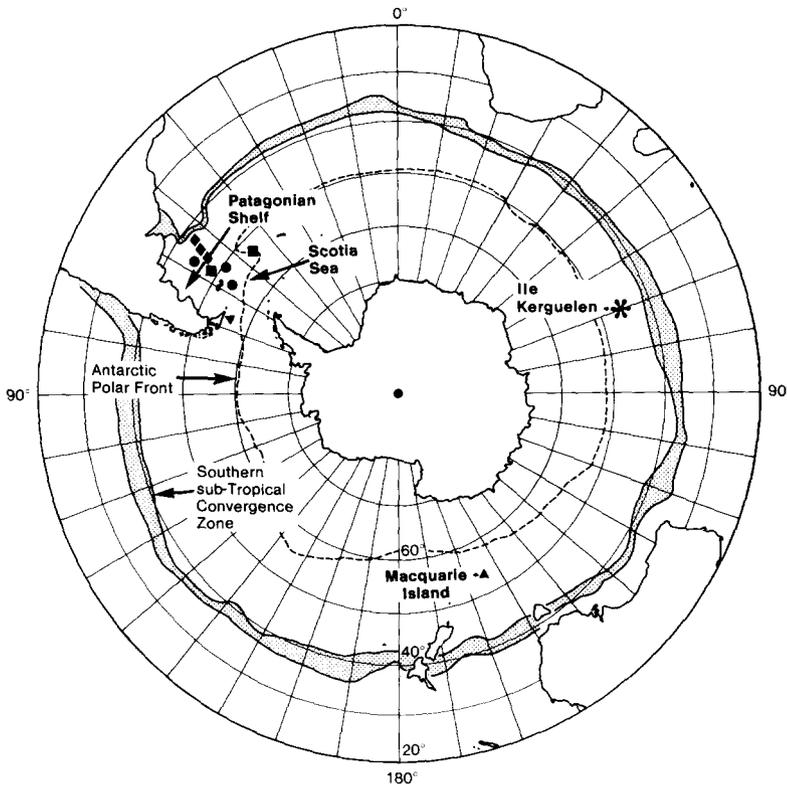


Fig. 1. Map of the Southern Ocean showing known distribution of *Martialia hyadesi* (* this paper; ▼ Rochebrune and Mabile 1889; ● Nesis and Nigmatullin 1972; ▲ O'Sullivan *et al.* 1983; ◆ Brunetti *et al.* 1990; ■ Rodhouse, in press)

Southern Ocean, apparently confirms the circumpolar distribution of the species, linking its known occurrence in the south west Atlantic sector and the western Pacific sector (Fig. 1). Given the areas where it has been caught, it seems likely that this large ommastrephid species, which has a probable life span of two years (Rodhouse, in press) and is closely related to species which are known to make extensive oceanic migrations, has a circumpolar distribution in the Southern Ocean. However, records to date suggest that it is probably associated with island groups in its local distribution.

This specimen is of particular interest because, unlike specimens from the Patagonian Shelf, Scotia Sea and Macquarie Island, it is fully mature. This suggests that it was probably caught in the relatively close vicinity of its spawning ground which may be associated with islands or sea mounts. The life cycle of *M. hyadesi* must be closely related to the West Wind Drift, especially in relation to transport of eggs, larvae and juveniles, but the early life history of the species remains unknown.

Several albatross species in the Indian Ocean Sector of the Southern Ocean have been found to prey on ommastrephid squid (Berruti and Harcus 1978; Brooke and Klages 1986; Weimerskirch *et al.* 1986). Care is needed in identifying ommastrephid remains in predator gut contents and regurgitations in this area as *Todarodes filippovae* is also present in the region (Adam 1975). An immature female *T. filippovae* with a mantle length of 353 mm was taken by *KALPER* on 28 April 1988 at 48°39.1'S, 70°51.1'W at a depth of 125–160 m with the same gear as the *M. hyadesi* specimen. The two species are

therefore sympatric in the vicinity of the Kerguelen Islands.

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