

DISTRIBUTION OF MESOPELAGIC CEPHALOPODS AROUND A WARM-CORE RING IN THE EAST AUSTRALIAN CURRENT

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Abstract

A warm-core ring of the East Australian current was sampled from August 1979 to May 1980 to investigate how its sustained thermal structure affected the distribution and abundance of micronekton, including cephalopods. Samples were collected at night with 1 hour tows of a midwater trawl (RMT 8) to a maximum depth of 540 m. The length, sex and maturity stage, together with temperature and depth of occurrence, were recorded for approximately 2000 specimens in 37 species of pelagic squid and octopus. The families Enoploteuthidae, Histioteuthidae and Cranchiidae contained most species and individuals.

The distribution pattern of species relative to water temperature, depth or geographical position relative to the ring was rarely consistent between different months of sampling. Multivariate analysis showed small-scale spatial and temporal homogeneity between the species composition of samples.

Distribution of some species did, however, indicate differentiation of regions relative to the ring. *Pterygioteuthis gemmata* was more abundant outside the ring whereas its congener, *P. giardi*, was more abundant at the edge of and outside the ring, in all months of sampling. Some species (e.g. *Spirula spirula*) occurred in a restricted range of temperatures and depths but abundances were too low for statistical analysis.

Large oceanic squid readily evade trawls and were not collected in the RMT samples. They were nevertheless of interest as predators in the pelagic ecosystem associated with the ring and, in particular, its encircling thermal front. Hand-held jig lines were used to collect these larger individuals, primarily of the species *Ommastrephes bartramii*. Their morphometry and stomach contents were studied in relation to the hydrography of the ring.