

taken with a large USNEL spade box corer, which removes a relatively undisturbed mud core of 0.25 m² in area, and up to 40 cm deep. Such a large and cumbersome corer is necessary when sampling sparsely-distributed species at these depths in order to recover a large enough sample of the mainly burrowing fauna associated with the muddy sediment. The use of an acoustic pinger is essential for monitoring the operation of the corer on and near the sea bed.

The Cumacea (Crustacea) of the INCAL cruise

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Along with the other groups of the peracarid crustaceans, the Cumacea have been found in recent years to be numerically an important part of the deep sea benthos. The majority inhabit shallow burrows in muddy substrates and sort through the surface material for organic matter. Most are less than 8 mm long. As many as forty-three separate species have been collected in a single epibenthic sledge haul taken at about 2000 m depth in the Rockall Trough.

The INCAL Cruise of R.V. *Jean Charcot* from the Centre Océanologique de Bretagne, Brest, took place in July and August 1976. It was designed to compare the efficiency and selectivity of different collecting gear and methods developed by several institutions, namely SMBA, Dunstaffnage, COB, Brest and IOS, Wormley. A series of stations was worked in the Rockall Trough, followed by others in the Porcupine Bight and Abyssal Plain and the Bay of Biscay. Cumacea were obtained in forty-five of the samples. One hundred and fourteen species were represented, of which probably twenty-three have not yet been described. Seventy-six species were found in the samples from the Rockall Trough and ninety-two in those from further south, fifty-four of these being common to both areas. A further twelve of these species have been recorded previously from both areas, making nearly 60% in common. These numbers demonstrate the high level of speciation that has occurred among the cumaceans in the deep sea.

The species and samples from the INCAL Cruise were analysed by detrended correspondence analysis. The first axis scores for the ordination of the samples (Fig. 1) fall into two groups. The left hand group includes all the samples from depths of less than 3000 m and the right hand group all those from more than 4000 m. The ordination of the species is less clear cut but those obtained almost exclusively from less than 3000 m are clustered to the left while those from more than 4000 m are set to the right. However, most of the samples from less than 3000 m were taken in the Rockall Trough and all those from more than 4000 m in the southern area. The ordination is therefore not simply related to depth but also to geographical location. Since about 60% of the species obtained are common to both areas it may be assumed from the data available that the depth is the more important factor controlling their distribution.

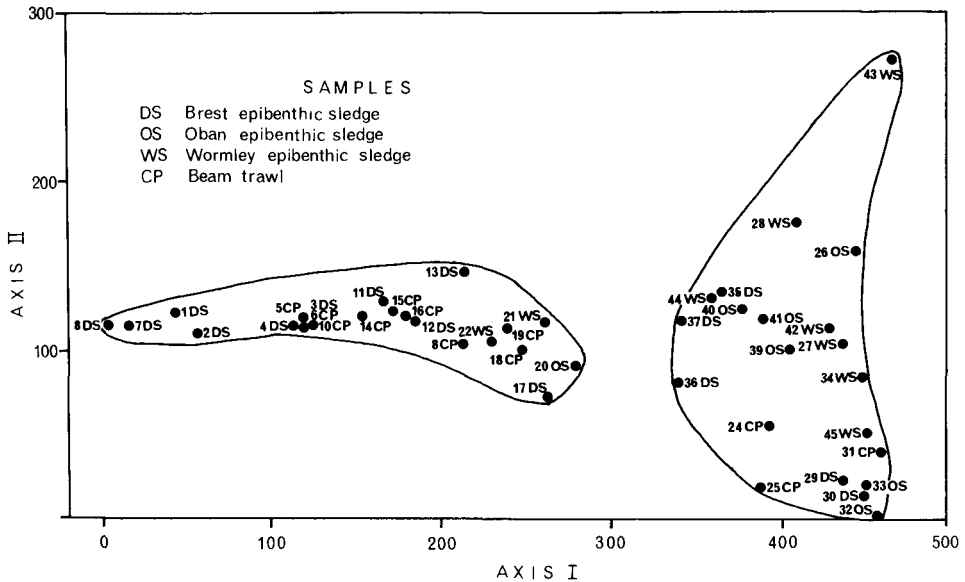


Figure 1. First axis ordination by detrended correspondence analysis of the INCAL Cruise samples.

No significant differences were apparent between the different types of collecting gear for the numbers of species or specimens of cumaceans collected in the southern area where each type of gear was used. The samples were sorted by the Centre National de Tri d'Océanographie Biologique.

A spider crab and its larvae

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Dorhynchus thomsoni Thomson is a small spider-crab (Brachyura, superfamily Majoidea), common on the slopes of the Rockall Trough. The adult resembles *Inachus*, *Macropodia* and *Achaeus*, (Majoidea, family Inachidae), but the larvae are unique.

Most zoeas of brachyuran crabs have four carapace spines, but examples with fewer spines are not uncommon, and *Inachus*, *Macropodia* and *Achaeus* have only one. Zoeas with more than four carapace spines are very rare, but *Dorhynchus* has fourteen spines and two blunt processes (Fig. 1). Its telson and appendages resemble those of other Inachidae, although some of the spines are unusually large.

The only other known larvae with a similar pattern of spines are late zoeas of *Homola* (Brachyura, superfamily Homoloidea), a very primitive crab with no close affinities with the Inachidae. Perhaps *Homola* has retained the ancestral form of