

CEPHALOPODS ASSEMBLAGES FROM THE SOUTHERN TYRRHENIAN SEA

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Abstract

The Teuthofauna assemblages of the Southern Tyrrhenian Sea were studied utilising data derived from five International Mediterranean bottom trawl surveys. A total of 25 cephalopod species were found between 18 and 652 m depth. The assemblages were analysed with Bray-Curtis similarity index. Four main groups were defined: inshore, shelf, slope and mid-slope. *Allotheutis media* was the dominant species inshore, *Illex coindetii* on the shelf, *Todaropsis eblanae* on the slope, and *Todarodes sagittatus* for the last group.

Key words: Cephalopods, Faunal assemblages, Mediterranean Sea

Introduction

The geographic and bathymetric distributions of demersal cephalopods have been studied in great detail in the Mediterranean (1,2,3,4), since many species are of commercial interest. The present work analyses the structure of the cephalopod assemblages in order to provide information concerning their distribution inshore, on shelf, slope and mid-slope in the Southern Tyrrhenian Sea.

Material and methods

The material was collected at depths ranging from 18 to 652 m, between 1995 and 1999, in the Southern part of the Tyrrhenian Sea (central Mediterranean), between Suvero Cape (Calabria) and S. Vito Cape (Sicily), as part of the MEDITS project funded by the European Community.

A fishing vessel equipped with an experimental trawl net with 20 cm stretched mesh size in the cod-end, and 2-2.5 m of vertical opening was used. A total of 139 hauls were carried out, randomly allocated into five bathymetric strata (5). All cephalopods were identified and counted on board. A multivariate approach, on the basis of the calculation of a triangular similarity matrix (group-average linkage), by depth, year and abundance (number of specimens/hour), according to Bray-Curtis with the relative dendrogram was elaborated (6). The abundance values were also analysed by means of univariate indices, in relation to the four assemblages evidenced by cluster analysis: total number of taxa (S), total number of individuals (N), richness of Margalef (d), Shannon-Wiener diversity (H') and Pielou's evenness (J) indices

Results and discussion

A total of 25 cephalopod species were collected, belonging to three orders and eight families. The following species - *Onychoteuthis banksii*, *Ancistroteuthis lichtensteinii* and *Abralia veranyi* - were caught only once. *Sepia officinalis* was confined to shallow waters, less than 68 m deep. Half of the species had a wide bathymetric range that included the shelf and the beginning of the slope. The widest bathymetric distribution was that of *Eledone cirrhosa* (72-584 m), *Scaevargus unicolor* (38-549 m), *Todaropsis eblanae* (61-613 m) and *Pteroctopus tetracirrhus* (118-633 m). *Allotheutis subulata*, *Octopus vulgaris* and *Eledone moschata* were found only on the continental shelf; whereas *Octopus salutii* and *Rossia macrosoma* were collected only in depths greater than 200 m. *Histioteuthis bonnelli* was found exclusively in the deepest zone.

The dendrogram (Fig. 1) showed four clusters: I, inshore (<100 m); II, shelf (80-200 m); III, slope (200-600 m); IV, mid-slope (360-580 m). The inshore group was characterized by *Allotheutis media* and *Loligo vulgaris*. In the shelf group, *Illex coindetii* and *Allotheutis media* prevailed, followed by *Sepia orbignyana*, *Sepia elegans* and *Scaevargus unicolor*. The slope group was characterized by *Todaropsis eblanae*. In the mid-slope, consisting of few hauls, *Todarodes sagittatus* was the prevalent species.

Analysing the univariate indices, elaborated for the four groups, the highest biodiversity was observed in the shelf. In this zone, the highest values of Margalef and Shannon Weaver indices were recorded as well as the highest number of species and individuals. The highest values of H' can be explained by the relative homogeneity in abundances of the most frequent species. However a trend was observed according to the depth as evidenced also by the cumulative abundance curve, in which the shelf group showed the highest biodiversity and the middle-slope the lowest. In this last group both "d" and "H'" values recorded the lowest values (0.973 and 1.063 respectively). Finally the Evenness (J') values ranged from 0.616 to

0.661. The higher values were recorded for the last cluster. Also in the second cluster his values is quite high.

The 25 cephalopod species recorded in this study account for 42.4% of the species known from the Mediterranean (7).

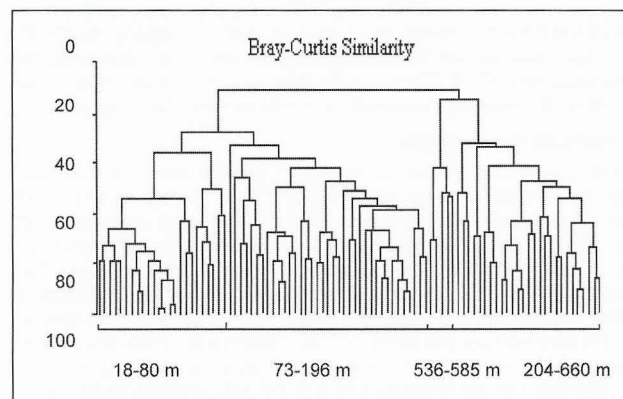


Fig. 1. Dendrogram showing similarities between hauls for the five surveys. Mean depth of each haul is presented.

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