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Comparative Size Distribution and Feeding Ecology of *Polycheles typhlops* and *Stereomastis sculpta* (Decapoda, Polychelidae) in the Mediterranean Bathyal Mud Assemblage

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Polycheles typhlops Heller, 1862 and *Stereomastis sculpta* (S.I. Smith, 1880), occur in the northwestern Mediterranean as characteristic species of the slope and bathyal basin (ABELLO & VALLADARES, 1988). Santucci (1932) stated that *P. typhlops* acted as a necrofagous species. However, Lagardère (1977) described it as a predator of bathypelagic crustaceans in the Bay of Biscay. The same author, from the foregut contents analysis of a few individuals, supposed that the diet of *S. sculpta* must be close to that of *P. typhlops*.

Three different kinds of bottom trawls were used: commercial demersal trawl nets equipped with a 6 mm mesh size codend, a modified Agassiz trawl, and a Marinovich deep-water bottom trawls. Codend mesh size was of 6 mm in all the different fishing gear used.

A total of 1869 individuals of *S. sculpta* and 736 of *P. typhlops* were studied. Sex, size (carapace length) and occurrence of ovigerous females were noted in every sample taken. Foregut contents of 168 *P. typhlops* (127 from the upper slope and 41 from the lower slope), and 153 *S. sculpta* from the bathyal basin were analysed. Prey items were identified to the lowest possible taxonomic level. Foregut contents were quantified: occurrence and relative abundance of preys were calculated.

The size range of *Polycheles typhlops* and *Stereomastis sculpta* was very similar. Size ranges of males and females were very similar in *S. sculpta*, whereas in *P. typhlops* males are clearly smaller than females.

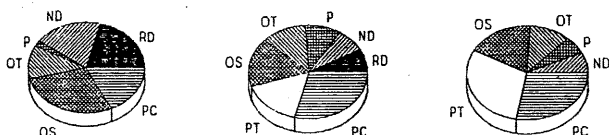
Sizes of *P. typhlops* showed a general tendency to decrease with increasing depth. Ovigerous females were more abundant in the upper distribution levels of the species. Recruitment apparently takes place at the deepest levels of the species' distribution range, where almost exclusively only juvenile individuals are found. This tendency shows an inverse pattern to that of most littoral and shallow water decapods, in which recruitment usually takes place in shallower waters.

S. sculpta did not apparently show any clear tendency in its size distribution in relation to depth. The largest individuals and the ovigerous females occurred mainly between 1900-2200 m.

The diet of the two species of Polychelidae studied is mainly based on the capture of small epibenthic peracarid crustaceans and other preys such as polychaetes and small decapods (*Plesionika acanthonotus*, *Pontophilus norvegicus*): Scavenging is also important. Thus, we can find remains of large decapod crustaceans (*Aristeus antennatus*), cephalopods (*Histioteuthis*) or fish. Bathypelagic crustaceans (euphausiids, *Pasiphaea*, Sergestidae), basis of their diet according to Lagardère (1977) seem to have only a seasonal importance, and are restricted to the upper slope (500-700 m).

In the upper slope, burrowing crustaceans (*Calocaris macandreae* and *Alpheus glaber*) are also important in the diet and constitute about 20 % of the diet. They disappear in deeper areas. Detritus of pelagic origin, such as pteropod remains (*Clio pyramidata*, *Cavolinia*) and globular foraminiferans (*Globorotalia*, *Orbulina*, *Globigerinoides*) also constitute an important part of the diet in areas deeper than 1000 m in the two species studied. Foraminiferans, not quantified as relative abundance values in this study, occur more frequently in areas deeper than 1000 m (40 % in *P. typhlops* and 60% in *S. sculpta*), whereas in the upper slope their occurrence shows very small values (5 % in *P. typhlops*).

P. typhlops (600-700 m) *P. typhlops* (1000-1200 m) *S. sculpta* (1700-2200 m)



- Comparative diets of Polychelidae. RD: Reptantia decapods; ND: Natantia decapods; P: Polychaetes; OT: Others; O: Osteichthyes; PT: pteropods; PC: Peracarid crustaceans

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