Little is known about deep-sea decapod crustacean larval ecology despite their dominance in the nekopelton in some areas and seasons.

New information was obtained on the occurrence and morphology of the larval stages of Polycheles typhlops, a widely-distributed deep-sea crustacean commonly found in the Mediterranean Sea.

Mesozooplankton sampling was carried out using depth-stratified sampling devices at two stations located on the continental shelf break and middle slope, in the northwest and south of Mallorca (Mediterranean) in late autumn 2009 and summer 2010 (Fig. 1).

The occurrence of larval stages of P. typhlops was registered in both seasons below the euphotic layer only over the middle-slope stations. The zoeal stages were caught between 200 and 600 m depth and the decapodite at 600-800 m depth.

The larvae were confidently assigned to P. typhlops by molecular analysis using the nucleotide sequence of a region of the 16S rDNA and COI genes. Morphological characters are described in detail for the three zoeal and decapodid stages.

The highest larval densities were observed in the south slope where early zoaeae were more common during summer, coinciding with the maximum values of surface fluorescence and organic matter fluxes (Fig. 2).

The first zoeal stage performs a significant vertical migration, given that they hatch from berried-female eggs in deep waters (> 300 m depth). Our study reveals ontogenetic differences along the water column (Fig. 3).

Polycheilidae larvae are mixotrophs feeding on phytoplankton, detritus and other zooplankton [3].

Adult pereiopods function in the capture of prey, specially the first and second are used to convey tissue of the prey to the mouthparts. Therefore, high larval development of the first two chelated pereiopods since the first stage of P. typhlops, even since prezeal stage [4], must be related with a more efficient way to capture preys that are sinking through the deep water column, despite the undeveloped eyes of polycheilid larvae.

Polycheles typhlops (Decapoda, Polycheilidae)

Acknowledgements: This research was partially financed by IDEADOS project (CTA4006-05588-C16-01) and A.P. Torres by pre-doctoral FPI Fellowship support from the regional government of the Balearic Islands, co-financed by the European Social Fund.

Bibliography: