DEPTH DISTRIBUTION OF PANDALIDS GENUS IN THE NORTH AEGEAN SEA

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Abstract
Many aspects of pandalids biology and ecology such feeding behaviour and growth were studied in the Mediterranean Sea. However, information from eastern Mediterranean are scarce.The objective of the present study is to describe pandalid species community and the growth of the most widely distributed species in the northern Aegean Sea.
Keywords : Aegean Sea, Decapoda, Population Dynamics, Crustacea.

Deep-water pandalid species have an extensive geographical distribution. Since this taxon presents a high diversity and biomass, it has a great potential as a fishery resource in bathyal environments. In western and central Mediterranean, various aspects on trophic habits, depth distribution and reproduction patterns have been investigated.
In eastern Mediterranean, available information on their biology and ecology are limited [1, 2]. The present study has the objective to analyze main characteristics of bathyal distribution and population structure of pandalid shrimps in the northern Aegean Sea.
The material was obtained during 1996-2001 at 64 sampling area in North Aegean Sea within Mediterranean International Trawling Survey (MEDITS)at depth ranging between 27 to 633 m.
Specimen were preserved in 10% formalin and tranferred in laboratory.
Shrimps were identified at species level. Carapace length (CL) was measured from the post orbital socket to the posterior median edge of the cephalotorax using a digital vernier caliper to the nearest 0,01mm.
General affinities between samples were estabilished using a presence-absence cluster analysis on a species x hauls matrix. Lenght distribution by depth was studied using mean CL for each haul and plotted versus depth. Correlation and significance level were calculated using Pearson r.
In the survey, 9 pandalids species were identified: *Chlorotocus crassicornis* (Costa, 1871), *Pandalina profunda* (Holthuis, 1946), *Plesionika acanthonotus* (Smith, 1882), *P. antigai* (Zariquiey Alvarez, 1955), *P. edwardsi* (Brandt, 1851), *P. gigliolii* (Senna, 1903), *P. heterocarpus* (Costa, 1871), *P. martia* (A.Milne Edwards, 1883) and *P. narval* (Fabricious, 1787).
C. crassicornis, *P. antigai*, *P. heterocarpus* and *P. martia* showed the highest occurrence.

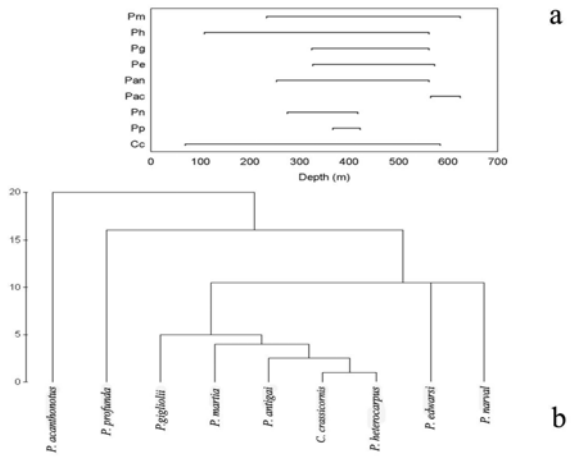

Fig. 1. a) Depth range by species. Cc *C. crassicornis*, Pp *P. profunda*, Pn *P. narval,* Pac *P. acanthonotus*, Pan *P antigai*, Pe *P. edwardsii*, Pg *P. gigliolii*, Ph *P. heterocarpus*, Pm *P. martia*.b) Presence-absence cluster: aggregation of pandalids species in the survey samples.

In summary, *P. heterocarpus* and *C. crassicornis* were the shallowest species. *P. profunda*, *P. antigai*, *P. edwardsii*, and *P. gigliolii* were species characterizing the upper slope. *P. martia* and *P. acanthonotus* were found at the upper-midle slope depths.
P. acanthonotus and *P. martia* occurred in deepest water, reaching the maximum depth of the survey campain (633m).
P. profunda showed a low occurrence since it has been found in 2 hauls at depth of around 400m. (fig. 1a). However, pandalid species examined in this study showed to inhabit depth strata as described from the western Mediterranean [3]. Neverthless, it was observed for each species a wider depth distributions with their upper limit founded at deeper waters.
Cluster analysis has identified a homogeneous group that includes 5 species (fig. 1b). *C. crassicornis*, *P. antigai*, *P. gigliolii*, *P. heterocarpus* and *P. martia* could represent a community occurring at the upper slope (300-500m) in three sector of the survey area (Hios, Sporades, Halkidiki).

Length distribution by depth was calculated for the most distributed 4 species. Three of them *C. crassicornis*, *P. heterocarpus* and *P. martia* showed a strong linear relationship ($p<0.05$) of mean size (CL) upon depth (fig. 2). For pandalids, tendency to increase size with depth is a common pattern. This tendency has been correlated to the presence of particulate matter layer that could affect the occurrence of juveniles and adults ontogenetic depth migration [4].

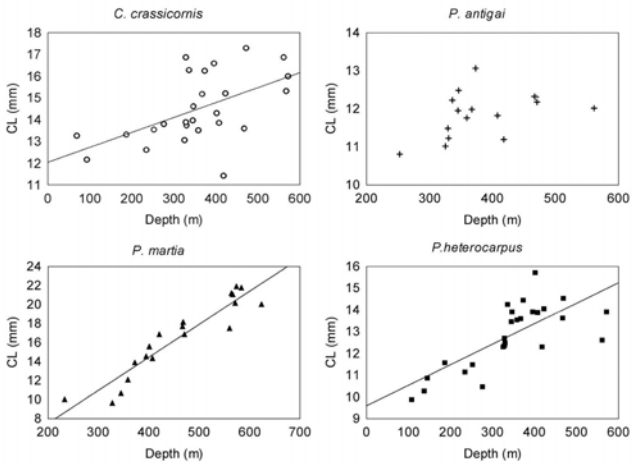

Fig. 2. Plot of mean size (CL) by depth. *C. crassicornis* r = 0,5450; p <0.05 *; P. antigai*: r = 0,4294; p >0.05 *; P. martia*: r = 0,9394; p <0.05; *P. heterocarpus*: r = 0,7376; p <0.056.

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