DECAPODA CRUSTACEA IN THE SOUTHERN TYRRHENIAN SEA - FIVE YEARS OF RESEARCH

Nunziacarla Spanò

Department of Animal Biology and Marine Ecology, University of Messina, Salita Sperone 31, S.Agata 98167 Messina, Italy

Abstract

We report data on Crustacea Decapoda in the Southern Tyrrhenian Sea, with their bathymetric distribution and biogeographic characteristics. A total of 297 stations were sampled; 95 species of Crustacea Decapoda were identified. The data reported provide a contribution to the knowledge of Crustacea Decapoda, on which there is very little documentation in the Southern Tyrrhenian Sea.

Key-words: decapoda, Tyrrhenian Sea, Bathymetry, Biogeography

Introduction

The current knowledge concerning the faunistic composition of benthic populations, in the Southern Tyrrhenian Sea, is still very scarce. In fact, although the sea-bed of this area has been studied since 1970 (1, 5), no specific research line has ever been carried out. The data reported in this paper concern a specific project carried out by our group on the biodiversity in this area. In particular the results reported here are the first concerning the Crustacea Decapoda, taxon on which there is still very little documentation.

Materials and methods

The results refer to several oceanographic cruises carried out in the Southern Tyrrhenian Sea between 1992 and 1996. The studied area extends from Capo S. Vito (Western Sicily) to Capo Suvero (Calabria). Samples of sediment were taken with a modified "Van Veen" grab with sampling capacity of 70 dm^3 and 0.25 m^2 surface area. Living macrofauna was obtained by sieving the sediment through a 1 mm mesh screen. Trawl-survey samplings were carried out by a trawl net with a mesh size of 40 mm. The Crustacea Decapoda were extracted and determined to specific level.

Results and discussion

Altogether the Crustacea Decapoda were found in 137 stations, from 0 to 140 meters depth, and in 160 hauls between 0 and 700 m. In table 1 the list of the species found is shown. In particular, the species collected along the Sicilian coast (75 species) resulted being more abundant than those found along the Calabrian coast (50 species).

With regard to the bathymetric distribution, 44 Decapoda were found between 0 and 60 meters deep in the infralittoral zone, 11 were found between 60 and 200 meters in the circalittoral zone and 10 in the bathyal zone below 200 meters. Finally, some species show a wide distribution (about 0-500 m).

The biogeography of Crustacea Decapoda shows the same characteristics of this all Mediterranean fauna (6, 7, 8). Taking the Mediterranean as a "province" of the wide Atlantic area, we notice that 65.4 % of this species shows an Atlantic-boreal distribution (8). Even if within the Mediterranean Sea there is a further division between the Western, Central and Eastern basins, our data faithfully reflect Fredj's distribution (1974). In fact the most of the species encountered by us must be considered as species with Atlantic affinities. Such a "western" characteristic is considered even more evident by the presence of *Pilumnus inermis*, A. Milne Edwards & Bouvier, 1894. This species considered in literature to be predominantly Atlantic (9), in spite of numerous findings in the Western Mediterranean (10, 11, 12).

Nevertheless, it is worth underlining the presence of *Albunea carabus* (L., 1758) that Pérès (1967) considers as an element of a "Senegalian relict fauna", with a continuous distribution throughout the Eutyrrhenian Era. This author has also suggested that at present climatic barriers prevent the expansion of the Ibero-Moroccan species in the Eastern basin (14).

Finally, another species, found in the Southern Tyrrhenian Sea deserves a particular mention: *Parthenope expansa* (Miers, 1879) sampled exclusively in the Western Ionian Sea, along the Sicilian coasts, North of the Gulf of Catania, and also found by us in the Straits of Messina (12).

The faunistic diversity found in the Southern Tyrrhenian Sea is due to the particular geographical position of the examined area, which is situated between the western and central basins, with their respective fauna. In fact, although Crustacea Decapoda are characterized by a low population density, they have a good descriptive role even as far as biogeography is concerned (15).

References

1 - Arena P., Bombace G., 1970. Bionomie benthique et faune ichtyologique des fonds de l'étage circalittoral et bathyal des golfes de Castellammare (Sicile nord- occidentale) et de Patti (Sicile nord-orientale). *Journ. ichthyol.*, 145-156. XXII CIESM, Roma.

2 - Arena P., Li Greci F., 1973. Indagine sulle condizioni faunistiche e sui rendimenti di fondali batiali della Sicilia occidentale e della bordura settentrionale dei banchi della soglia siculo-tunisina. *Quad. Lab. Tecnol. e Pesca*, 4: 157-201.

3 - Bombace G., 1970. Sulle biocenosi e sulla malacofauna vivente e fossile del margine continentale e della zona batiale di alcuni fondali tirrenici della Sicilia. *Boll. Pesca Piscic. Idrobiol.* XXV: 169-181.

4 - Rinelli P., Spanò N., Greco S., 1997. Distribuzione di Crostacei Decapodi ed Echinodermi dei fondi strascicabili del Mar Tirreno Meridionale. *Biol. Mar. Medit.* in press.

5 - Spanò N., Potoschi A., 1997. Crostacei Decapodi ed Echinodermi di fondi mobili strascicabili del Basso Tirreno. *Biol. Mar. Medit.* in press.

6 - Fredj G., 1974. Stockage et exploitation des données en écologie marine. C - Considérations biogéographiques sur les peuplements benthiques de la Méditerranée. *Mem. Inst. Oceanogr. Monaco*, vol. 7:1-88.

7 - Fredj G., Laubier L., 1985. The deep Mediterranean benthos. In M. Moraitou- Apostolopoulou e V. Kiortsis (eds.) Mediterranean Marine Ecosystem: 109-145.

8 - Di Geronimo S.I., 1990. Biogeografia dello zoobenthos del Mediterraneo: origine e problematiche. *Oebalia* Suppl., Vol. XVI-1: 31-49.

9 - Manning R.B., Holthuis L.B., 1981. West african brachyuran crabs (Crustacea: decapoda). *Smith. Cont. to Zool.*, 306: 1-379.

10 - Garcia Raso J.E., 1985. New records of Crustacea decapoda from Alboran Island (Spain). *Bol. Soc. Entomol.*, suppl. 1: 11-18.

11 - Di Geronimo S.I., Fredj G., 1987. Les fonds à *Errina aspera* et *Pachylasma giganteum*. *Doc et Trav. IGAL*, 11:243-247.

12 - Spanò N., 1996. Distribution of Crustacea decapoda in the Straits of Messina. Colloquium Crustacea Decapoda Mediterranea Florence 12-15 September 1996. *Journ Nat. Hist. London*, 32, 6.

13 - Pérès J.M., 1967. The Mediterranean benthos. *Oceanogr. Mar. Biol. Ann. Rev.*, 5: 449-533.

14 - Giacobbe S., Spanò N., 1996. New records of *Albunea carabus* (L.) (Decapoda, Anomura) in the Mediterranean Sea. *Crustaceana*, 69,6: 719-726.

15 - Almaca C., 1985. Evolutionary and zoogeographical remarks on the mediterranean fauna of brachyuran crabs. In M. Moraitou-Apostolopoulou e V. Kiortsis (eds.) Mediterranean Marine Ecosystem: 347-366.