

Occurrence of *Peneopsis serrata* (Bate, 1881) (Decapoda, Penaeidae) in the Mediterranean Sea

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Peneopsis serrata (Bate, 1881) is a peneid shrimp whose distribution area encompasses both sides of the northern subtropical Atlantic Ocean, from North Carolina to Surinam, including the Bahamas, Gulf of Mexico and Caribbean, in the western Atlantic, and from South Portugal to Rio de Oro in the eastern Atlantic (Lagardère, 1971; Crosnier & Forest, 1973; Holthuis, 1980; Noël, 1992), excluding, to date, the Mediterranean Sea.

The species was not included in Zariquiey-Álvarez's (1968) posthumous work on the fauna of decapod crustaceans from the Iberian Peninsula. Maurin (1962), however, indicated that *Peneopsis serrata* was rather common off the south coasts of Portugal and Spain west of Gibraltar. This author also stated that, despite intensive sampling off the Mediterranean northern coasts of Africa between the Strait of Gibraltar and Tunisia, *P. serrata* was not found to occur in Mediterranean waters. Later on, other authors (Sardá *et al.*, 1982; García-Raso, 1996; López de la Rosa, 1997) have also reported the occurrence of the species in nearby Atlantic areas, west of the strait of Gibraltar. Faunistic studies on the Alborán Sea fauna had also failed to report *P. serrata* from the Mediterranean Sea (Miranda y Rivera, 1933; Sietti, 1933; García-Raso, 1982, 1984, 1985, 1989; García-Raso & Salas-Casanova, 1984), although it must be stated that most of these studies were focused on the littoral and shallow-water fauna.

The present note aims to report the occurrence of *Peneopsis serrata* in the Mediterranean Sea, in the vicinity of the island of Alborán.

Material examined

Peneopsis serrata (Bate, 1881)

One adult female, 19.5 mm carapace length, was captured on the 11 February 1997 by trawling in the vicinity of the island of Alborán (initial position of the haul: 35° 56.18 N, 3° 08.04 W) from a depth of 378 m. The sample was taken within the frame of a fisheries research cruise ("REINBAM 9702") performed on board B/O "Cornide de Saavedra". The specimen has been deposited in the Biological Collections of Reference of the Instituto de Ciencias del Mar (CSIC) in Barcelona (Spain) with the code number ICMD-259/1997.

The species is known from nearby areas in the Eastern Atlantic Ocean, such as the Gulf of Cadiz and southern Portugal, west of the Strait of Gibraltar (Sardá *et al.*, 1982; Ribeiro-Cascalho, 1987; García-Raso, 1996; López de la Rosa, 1997), and its occurrence in waters around the Canary Islands is also probable (González-Pérez, 1995). Crosnier & Forest (1973) indicated that the species appeared to be commoner in subtropical rather than tropical regions off West Africa. The individual studied herein constitutes the first reported occurrence of *Peneopsis serrata* in the Mediterranean Sea, east of the Strait of Gibraltar.

The depth of occurrence of this present specimen (378 m) fits well within the depth range reported for the species in nearby areas of the Atlantic: 120-640 m (Bouvier, 1908; Lagardère, 1971; Holthuis, 1980; Noël, 1992), 180-600 m (Maurin, 1962), 200-700 m (Maurin, 1963; Crosnier &

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Forest, 1973), 150-600 m (Maurin, 1965), 351-457 m (Sardá *et al.*, 1982), 347-491 m (García-Raso, 1996).

From the biogeographical point of view, it must be remarked that the Alborán Sea (the westernmost area of the Mediterranean Sea) has a strong Atlantic influence due to the particular hydrographical regime taking place in the area: there is a surface influx of Atlantic water entering the Mediterranean through the Gibraltar Strait and a deeper outflux of Mediterranean water into the Atlantic Ocean (Hopkins, 1985). The occurrence of *Peneopsis serrata* in Alborán Sea may be due to the influx of epipelagic larvae entering the Mediterranean through surface waters, since the deep currents would not favour the influx of adult individuals. It is still too early to ascertain whether *P. serrata* forms well-established populations and performs its whole life cycle within the Mediterranean or whether its presumed population in Alborán Sea constitutes a "pseudopopulation" sensu Bouchet & Taviani (1992), in which the adult specimens of a species are not able to reproduce due to the particular environmental characteristics of the Mediterranean Sea, in particular the high temperature of the deep water (12-13°C), and the populations are therefore maintained only by the larval influx from the Atlantic.

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