REPRODUCTION OF THE CARAMOTE SHRIMP *MELICERTUS KERATHURUS* (DECAPODA, PENAEIDAE) IN THE SOUTH ADRIATIC SEA (SOUTH-EASTERN COAST OF ITALY)

BY

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ABSTRACT

The reproduction of the native penaeid shrimp, *Melicertus kerathurus* (Forskål, 1775) was studied along the marine belt of the southeastern coast of Italy, between the cities of Termoli and Peschici, in an area covering approximately 100 km, down to the isobath of 35 m. Sampling was carried out periodically from June 2006 to September 2007, by experimental trawl survey. The results proved that the main reproductive period of *Melicertus kerathurus* spans from the end of May to about mid-August, with the main peak falling in June and July. The sex ratio (males/females) averaged 1.44 (± 0.61), with oscillations between 0.61 and 2.70. The size-at-maturity was estimated at 127.56 mm Total Length (CL = 31.42 mm) in males and 175.18 mm (CL = 45.56 mm) in females. The average gonadosomatic index varied in females at stage IV of ovarian maturity from 10.7% in June to 9.69% in July, with maximum values of 7.35% and 14.35% (± 1.99%). Relative fecundity averaged 79,143 (± 19,041) mature oocytes and the main absolute fecundity resulted in 322,102 (± 100,482). The average diameter of mature oocytes was determined to be 258.70 (± 57.49) μm.

RIASSUNTO

E’stato studiato il ciclo riproduttivo del gambero peneide *Melicertus kerathurus* (Forskål, 1775) nelle acque del Mar Adriatico, sulla costa sud orientale italiana, lungo una fascia di circa 100 km, tra le città di Termoli e Peschici, estendentesi al largo fino all’isobata di 35 m. Sono stati effettuati periodicamente campionamenti della popolazione del peneide dal giugno 2006 al settembre 2007, mediante reti a strascico. Lo studio ha evidenziato che la specie nell’area presa in considerazione ha un periodo riproduttivo che si estende circa dalla fine di maggio alla metà di agosto, con una fase di maggiore attività nei mesi di giugno e luglio. Il rapporto sessi (maschi/femmine) è risultato mediamente di 1,44 (± 0,61), con fluttuazioni comprese tra 0,61 e 2,70. La lunghezza totale alla quale la specie si riproduce è risultata per i maschi di 127,56 mm (lunghezza del carapace =

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The penaeid shrimp *Melicertus kerathurus* (Forskål, 1775), commonly known as Caramote shrimp, is found in the whole Mediterranean Sea and in the northern part of the Red Sea, into which it migrated as a result of the opening of the Suez Canal. In addition, it is found along the Atlantic coast: in the south along the African coasts of Angola, and in the north up to the southern coasts of England (Holthuis, 1980).

Caramote shrimp are much appreciated by Italian consumers, who are willing to pay the market price for this product, which is usually quite high in relation to other significant marine commodities (Lumare & Scordella, 2001). In spite of its appreciation by Italian consumers, because of the poor quantities of the catch this species is not considered an important commodity for the Italian fishery economy. According to the recent FAO evaluations (FAO, 2009) for the year 2007, the main producers of this penaeid in the Mediterranean are: Greece (3056 mt), Tunisia (1962 mt), Italy (863 mt), Turkey (372 mt), Spain (316 mt), Albania (18 mt), and France (1 mt), amounting to a total of 6588 mt.

In the Mediterranean basin, the Caramote shrimp has been studied in the Italian lagoons of Lesina and Acquatina in the Adriatic Sea (Lumare & Villani, 1972; Lumare, 1976; Lumare & Scordella, 2001; Scordella & Lumare, 2001; Lumare & Lumare, 2009), in the Gulf of Amvrakikos, Greece (Conides et al., 1990; Klaoudatos et al., 1992), in the Gulf of Gabès, Tunisia (Ben Mariem, 1993, 1995, 2004), in the shallow waters of the Annabà region, Algeria (El Mekki, 1994), the Thermaikos Gulf, Greece (Kevrekidis & Thessalou-Legaki, 2006), and along the south-western Sicilian coast (Cannizzaro et al., 2007; Vitale et al., 2010).

In Italy, the Caramote shrimp does not represent a target species but it is a by-catch of commercial bottom trawlers operating on sand bottoms. The species is caught in summer with trammel nets, during its migration to shallow waters (5-15 m), in areas where rivers flow and the salinity and the environmental conditions are generally favourable for its reproduction (Lumare & Scordella, 2001; Lumare & Lumare, 2008). The aim of this study was to investigate the reproductive cycle of Caramote shrimp along the southern Adriatic coast of Italy, taking into consideration the small number of studies on these important aspects of the biology of the species.