

RESTOCKING TRIAL OF *MELICERTUS KERATHURUS* (DECAPODA, PENAEIDAE) IN THE SHALLOW COASTAL WATERS OF SOUTHWESTERN SICILY (MEDITERRANEAN SEA)

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Abstract

A test on the restocking trial of Caramote prawns was carried out in the southwestern Sicilian coast from wild breeders. The number of specimens released was probably too low to allow for a lasting effect on the population. In the future, an higher number of nauplii must be released for several years.

Keywords: *Decapoda, Aquaculture, Coastal management, Sicily Channel*

The penaeid shrimp Caramote prawn, *Melicertus kerathurus* (Forskäl, 1775), is widely distributed in the entire Mediterranean except in the Black Sea [1]. This species plays an important economic role in some Mediterranean coastal regions, as in Greece \approx 3,250 t, Tunisia \approx 2,300 t, Spain \approx 200 t Albania \approx 100 t [2] and Italy \approx 250 t [3]. The high demand of penaeid shrimps have stimulated, on the one hand, the developing of aquaculture activities and on the other hand, repopulation actions with the aim to support artisanal fishery in various countries worldwide [4, 5, 6, 7]. A test on the restocking trial of this species was carried out in the year 2004, in the shallow coastal area between Capo San Marco and Capo Granitola (southwestern Sicilian coast, Fig. 1).

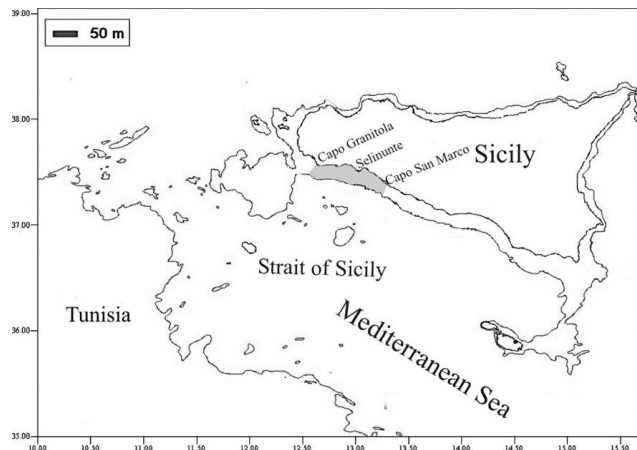


Fig. 1. Map of the study area showing the Selinunte harbour and the fishing ground where small craft catch *Melicertus kerathurus* (light grey).

Breeders from the restocking area were caught by trammel net throughout the entire fishing area during one night in July 2004. Females, completely intact and with spermatophore in the thelycum, were selected and transported in aquaculture plants. The restocking technique used in the aquaculture plant was that proposed by Lumare [8]. As the eggs began to hatch, the larvae (nauplii) were fed with *Chaetoceros* sp; after 5 - 6 days from their birth, the diet was integrated with *Artemia salina* nauplii. From the mysis III stage, that is after about 10 days from birth, larvae are called post-larvae. At that stage, the diet was also integrated with artificial feed for post-larvae shrimp made up of fish flour, fish oil, krill flour, wheat flour, vitamins and minerals. The post-larvae at the PL22 stage were lowered into the sea in a stretch of sandy water off-shore from Selinunte, with a depth between 50 and 100 cm, opportunely fenced and cleared of other materials and eventual predators. The post-larvae were then released after about 36 hours of adaptation.

A total of 148,799 eggs were released, from which 82,888 nauplii hatched at a percentage of 56%. Only 6,000 nauplii reached the PL22 sub-stage, that is after 32 days from their birth and they were sown with success (Tab. 1).

Tab. 1. Number of specimens caught for the reproduction, mature females, females selected for the reproduction, number of breeders, eggs released, nauplii hatched and nauplii PL22.

No. of specimens caught	Mature female
156	100
Female selected and shipped	
63	
No. breeders "useful"	Eggs released
22	148,799
nauplii hatched	post-larvae PL22
82,888	~ 6,000

The number of specimens released was probably too low to allow a lasting effect on the population. In the future, an higher number of nauplii must be released for several years. Worldwide, the restocking activities with shrimps did not have great success, since they constitute the production of a common good without any real interest to the private investor. On the contrary, the shrimp production represents an important stimulus for the private entrepreneurial activity (FAO, 2008). The production of shrimps in the world aquaculture reached about 4.23 million t in 2006, compared to a production of shrimps from catch of 4.84 million t. The recent implementation of "local management plans" along the Sicilian coasts (Regulation EC No 1198/2006) allows to support measures of common interest, like restocking strategy: if these strategies will be tested systematically for some years, they could be an important opportunity to verify the real increases of natural stocks and the profitability for the artisanal fishing activity.

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