

Beatriz Guijarro, Enric Massutí, Joan Moranta and Paz Díaz, (2007). [Population dynamics of the red shrimp *Aristeus antennatus*](#)

[in the Balearic Islands \(western Mediterranean\): Short spatio-temporal differences and influence of environmental factors](#)

. Journal of Marine Systems. Volume 71, Issues 3-4, June 2008, Pages 385-402. The Wrapping Up of the IDEA Project: - International workshop on environment, demersal resources and fisheries.

Abstract: The red shrimp *Aristeus antennatus* is one of the target species of the bottom trawl fishery of the Balearic Islands. The objective of the present paper is to study the short spatial and temporal differences of this important economic resource between two different locations off Mallorca (Cabrera: CA; Sóller: SO), where a fleet mobility pattern has been detected, and to study the influence of environmental conditions on this species. Six simultaneous bottom-trawl and oceanographic surveys were carried out at these two locations in order to collect data from the demersal species, hydrography (temperature and salinity), trophic resources and sediment characteristics. The commercial fleet from both locations was monitored by monthly on-board sampling, log-books and daily landings obtained from sales slips. Additional data was obtained from other fishing surveys. Short spatial and temporal differences have been detected between both locations. The population at CA was more demographically homogeneous, while that at SO showed important variations, like high abundance of juveniles recruiting to fishing grounds in autumn–winter and high abundance of large females during summer. Several differences have also been found in the biology of the species between locations, such as males were more abundant in SO than in CA. Also, the reproductive period started sooner in SO than in CA, and the condition of pre-spawning females was better in SO. The percentage of total lipids in the hepatopancreas was minimal during the spawning period, showing their importance as a reserve of energy for the ovary ripening. Water masses could play an important role in these differences, the characteristics of water masses being more stable in CA than in SO. Red shrimp adult females seemed to be more correlated with the warmer and more saline Levantine Intermediate Waters, while juveniles (males and females) and adult males were more correlated with the colder Western Mediterranean Deep Waters, detected only in SO during autumn–winter. Two different hypothesis of mobility patterns for the species are discussed in relation to these observed differences.

Keywords: Red shrimp; Spatial differences; Seasonality; Trawl fishing grounds; Water masses; Western Mediterranean; Balearic Islands