DISTRIBUTION AND ABUNDANCE OF THE ATLANTIC MUD SHRIMP, *SOLENOCERA MEMBRANACEA* (RISSO, 1816) (DECAPODA, SOLENOCERIDAE) IN THE NORTHERN AND CENTRAL ADRIATIC SEA

BY

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ABSTRACT

Data on the distribution and abundance of the Atlantic mud shrimp, *Solenocera membranacea* in the northern and central Adriatic Sea were collected by bottom trawl during 11 cruises of the “Pipeta” Expedition in the Adriatic Sea from 1985 to 1994. The expedition sampled approximately 59,000 km² of the continental shelf at predetermined permanent stations over different sediment types at depths of 10 to 430 m. The shrimp were found in depths of 55 to 289 m. The highest mean abundance was observed in the 50 to 100 m depth layer and from “relict” sand (sediment settled during the last glacial, and that was resedimented during the Holocene transgression) and clayey “relict” sand sediments.

RÉSUMÉ

Des données sur la distribution et l’abondance de la crevette atlantique des fonds vaseux, *Solenocera membranacea* dans les zones nord et centrale de la mer Adriatique ont été collectées par chalutage au cours de 11 croisières de l’expédition “Pipeta” dans la mer Adriatique de 1985 à 1994. L’expédition a échantillonné approximativement 59,000 km² du plateau continental à des stations pré-déterminées sur différents types de sédiments, à des profondeurs de 10 à 430 m. Les crevettes ont été trouvées à des profondeurs de 55 à 289 m. L’abondance la plus élevée a été observée à des profondeurs de 50 à 100 m et sur des fonds de sable “reliques” (sédiments déposés durant la dernière glaciation et re-sédimentés durant la transgression holocène) et de sables argileux sédimenteux “reliques”.

INTRODUCTION

The Atlantic mud shrimp, *Solenocera membranacea* (Risso, 1816) is distributed in the eastern Atlantic from Ireland to West Africa, and throughout the Mediterranean Sea on muddy bottoms at depths from 20 to 700 m (Holthuis, 1980).
some areas it constitutes an important by-catch of the demersal fishery (Demestre & Abelló, 1993) and is one of the dominant nektobenthic species of the upper slope community, playing an important ecological role within the megabenthic assemblages on continental margins (Abelló et al., 1988; Fariña et al., 1997).

In the Adriatic Sea, these penaeoid shrimp are common in night catches by bottom trawl. The available literature about the species in the Adriatic Sea focuses on its growth, reproduction, and feeding behaviour (Froglia & Gramitto, 1987) but not on its abundance.

Data on catch quantities of *S. membranacea* were obtained in the framework of fishery-biological investigations of the trawling grounds on the Adriatic continental shelf, carried out by the “Pipeta” Expedition (named after the trawler “Pipeta”, used for sampling) from 1985 to 1994. The main purposes of this research were to establish distribution and abundance of the species in the northern and central Adriatic Sea, its abundance in different depth strata, and in various types of sediment. In addition, differences in catch rates during different times of the day were also analysed.

**MATERIALS AND METHODS**

*Solenocera membranacea* was collected by an Italian commercial trawler, the “Pipeta”, during 11 cruises of the “Pipeta” Expedition (7th-17th cruises) in the Adriatic Sea from 1985 to 1994. The cruises were carried out once or twice a year with duration of approximately one month. The “Pipeta” Expedition sampled approximately 59,000 km² of the Adriatic continental shelf at predetermined, permanent stations along ten transects (A, B, C, D, E, F, G, H, I, and L) over different sediment types at depths of 10 to 430 m (fig. 1). The samples were continuously collected using the standard Italian bottom trawl (Piccinetti, 1972) during day and night. In the course of sampling, an effort was made to keep technical and construction characteristics of the bottom trawl (mesh size, mouth opening, speed of the vessel, etc.) constant at all stations. The stratification for each station regarding depth and sediment type was done later, since the station planning for all seventeen cruises had been done according to a systematic scheme.

The present paper analyses 285 hauls in the distribution area of the species, i.e., stations where the species was caught at least once. The abundance (catch rate) of the species at each station is expressed as the number of specimens per trawling hour (N/h) and as wet weight per trawling hour (kg/h). First, the catch rate at various times of day was calculated to establish the period of greatest presence, i.e., the highest availability of the species to the bottom trawl. Abundance of the species in the northern and central Adriatic Sea, and its abundance at different