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DEEP-WATER RED SHRIMPS FISHERIES BY SET NETS IN THE ISCHIA ISLAND (CENTRAL SOUTHERN TYRRHENIAN SEA)

LA PESCA DEI GAMBERI ROSSI CON RETI DA POSTA AD ISCHIA (TIRRENO CENTRO MERIDIONALE)

Abstract - Fishing for deep-water red shrimps by gill net in the Ischia island (Central-Southern Tyrrhenian Sea) is carried out in late spring-summer and it show a high degree of specialization to the target species, both in terms of weight and number of specimens (respectively 45% and 75%). The adult fraction of the population is particularly vulnerable to this fishing gear, with most of the catch concentrated between 40-48 and 44-46 mm carapace length, respectively for *Aristaeomorpha foliacea* and *Aristeus antennatus*.

Key-words: Ischia Southern Tyrrhenian, gillnet, *Aristaeomorpha foliacea*, *Aristeus antennatus*.

Introduction - The deep-water red shrimps *Aristaeomorpha foliacea* (Risso, 1827) and *Aristeus antennatus* (Risso, 1816) are distributed in almost all the Mediterranean in a range from about 100 to 1000 m depth with higher abundances from 400 to 800 m (Cau *et al.*, 2002). These species represent the most important economic resources for the deep-sea trawl fishery in the central southern Tyrrhenian Sea, though around the Ischia island the geomorphological characteristics of slope-bathial bottom impede the fishing activity by this type of fishery. Thus, since the years 70s a deep-water fishery targeting red shrimps by gillnet has been developed in the area. Aim of this work is to describe for the first time this fishery in terms of vessel characteristics, fishing activity, catch composition and length frequency distribution (LFD) of the target species.

Materials and methods - The observation on commercial landings and the on board activity were carried out in the context of Data Collection Framework (DCF EU Reg. 199/2008). In this work the period 2009-2012 was considered. Landing data were collected by species and fishing activity (depth, geographic positions, duration, length of nets). Carapace length (CL) for crustaceans and total length (TL) for fishes were measured on a subsample, at nearest 1 mm and 0.5 cm respectively.

Results - Fishing activity is concentrated in the late spring-summer months and is carried out by a minimum of 2 (December) to a maximum of 8 (July) vessels (Fig. 1). The landing of deep-water red shrimps during the observed fishing trips (32) ranged between 0.5 to 15 kg.

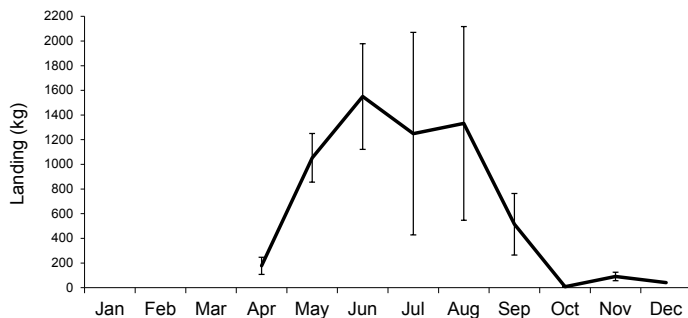


Fig. 1 - Mean monthly landing (averaged over 2009-2012) in kg of deep-water red shrimps caught by gillnet in Ischia island (GSA 10). The bars represent the standard deviation (data source: IREPA).
Sbarcato medio mensile (periodo 2009-2012) in kg dei gamberi rossi catturati con rete ad imbroggio ad Ischia (GSA 10). Le barre rappresentano la deviazione standard (data source: IREPA).

The area interested by this fishery is located in the west part of the island, usually few miles (3-4) from the coast between 350 and 550 m depth. The net (length 2500 m, drop 4 m, mesh size 16 mm), is deployed at the sea in the morning and is hauled after about 20 hours at sunrise. The mean length (LOA) of the boats involved is 10.6 m with engine of 61 kw on average. Regarding the catch composition, deep-water red shrimps represent the 45% and 75% in term of biomass and number of specimens respectively (Fig. 2). The most important by-catch species is *Merluccius merluccius*, that represents 27% and 7% in biomass and number of individuals respectively.

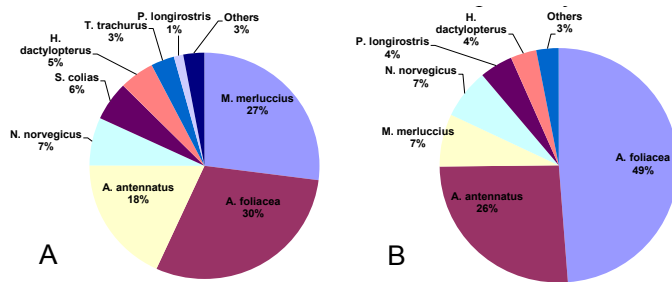


Fig. 2 - Catches composition in terms of the biomass (A) and number of specimens (B).

Composizione della cattura in termini di biomassa (A) e di numero di individui (B).

The other species, less represented in the catches, are typical of the slope, except for benthic-pelagic species as *S. colias* and *T. trachurus* possibly caught during the down of the net on the bottom. LFD of *A. foliacea* and *A. antennatus* as target species and *M. merluccius* as the bycatch are shown in Fig. 3.

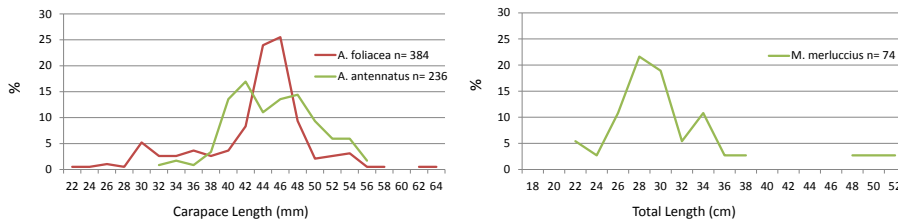


Fig. 3 - Length Frequency Distributions of the samples for the target species and bycatch.

Distribuzioni di frequenza delle lunghezze campionarie per le specie target e il bycatch.

Conclusions - This kind of fishery shows a high specialization for the target species and, given the high economic value of the catch, represents an important resource at local level. The data show as the bulk of the catch is concentrated on the adult fraction (STECF, 2013) of the population for both target species. Moreover, taking into account, that set nets have less influence on the bottom communities, this kind of fishery could be considered low impacting and a valid alternative to trawl fishery at local level.

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