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

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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 (Fig. 6) the geomorphological characteristics of slope-bathial bottom impede the fishing activity by this type of fishery. Thus, since 70s years a deep-water fishery targeting red shrimps by gillnet (Fig. 1) 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.

Fig.1 – example of red shrimp caught by gillnet

Materials & 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 crustacean and total length (TL) for fish were measured on a catch 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. 2). The landing of deep-water red shrimps during the observed fishing trip (32) is ranged between 0.5 to 15 kg (Fig. 7).
The area interested by this fishery is located in the south-west part of the island (Fig.6), 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 weight and number of specimens respectively (Fig. 3). The most important by-catch species is *Merluccius merluccius* (Fig. 5), that represents 27% and 7% in biomass and number of individuals respectively.
The others species, less represented in the catches, are typical of the slope, except for bentho-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. 4.
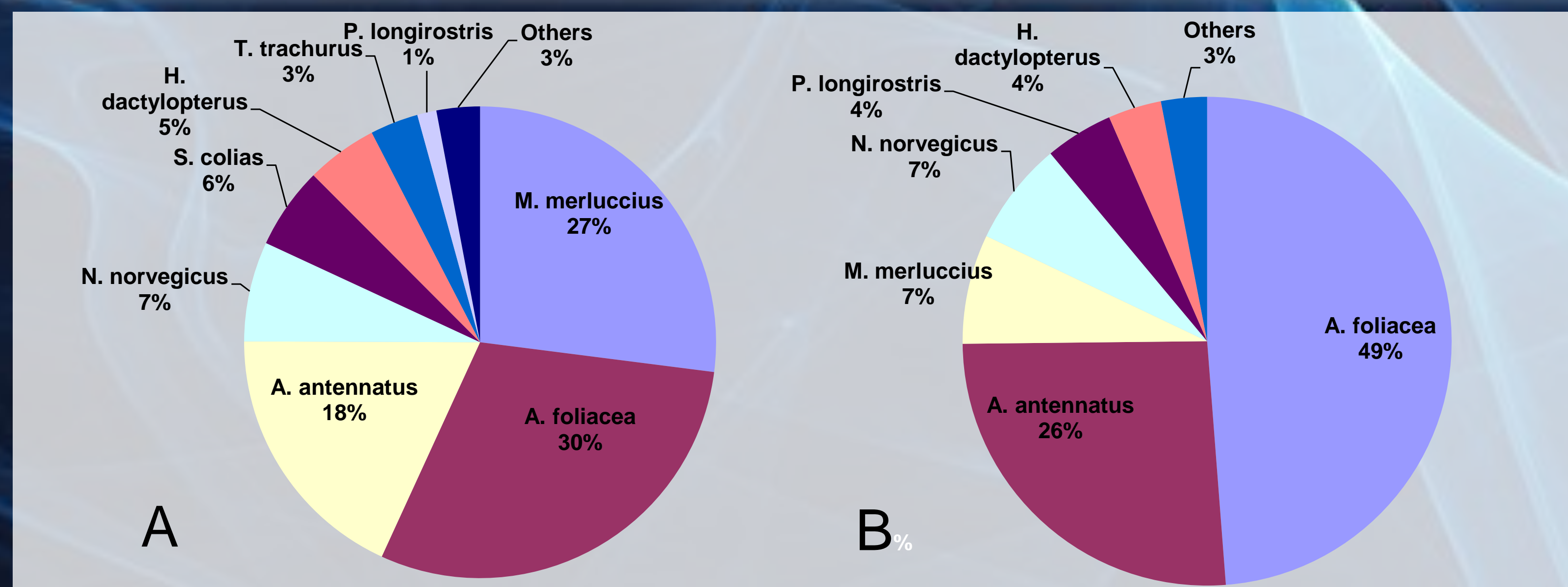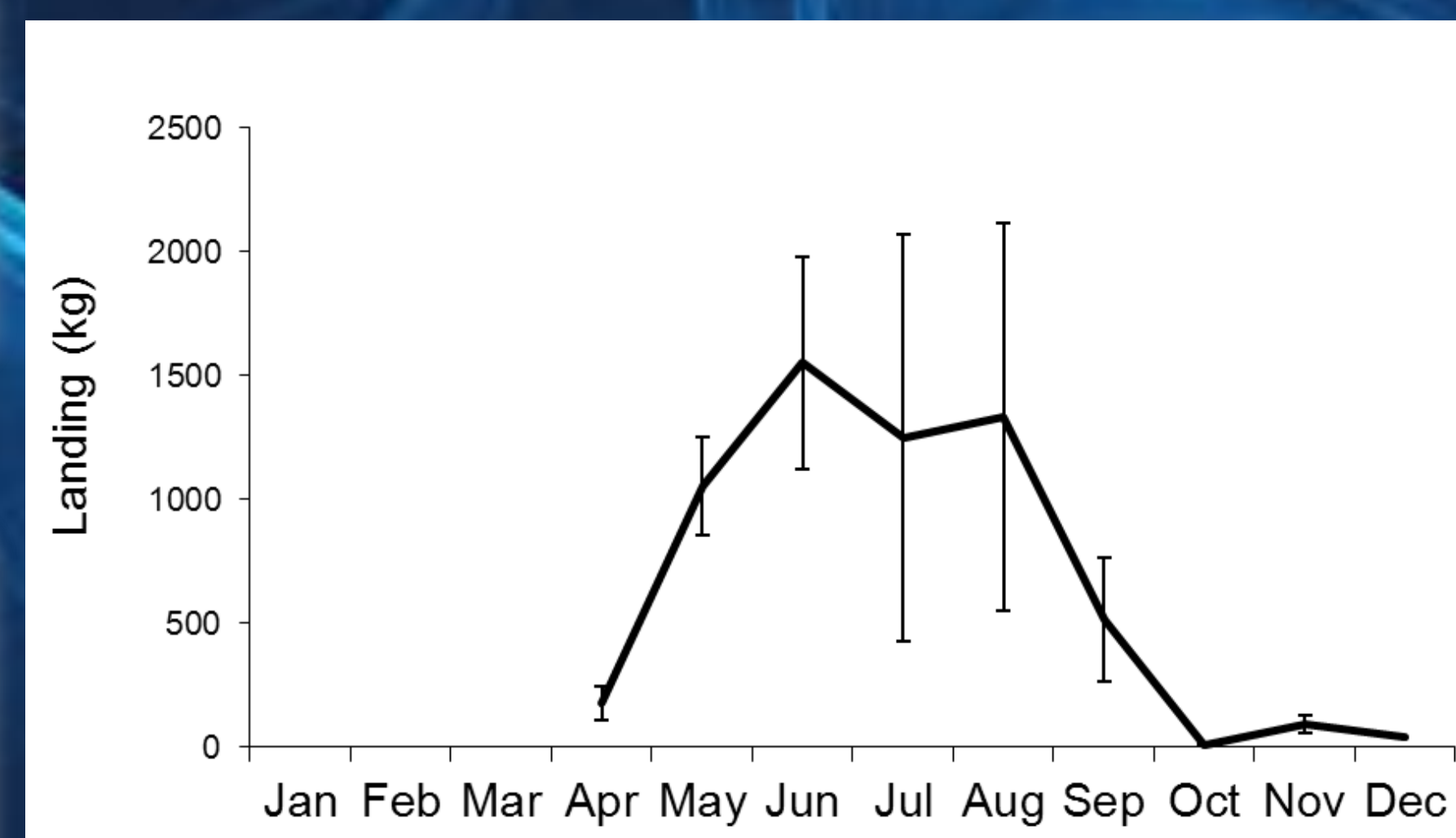

Fig. 2 - Mean monthly landing (averaged over 2009-2012) in kg of deep-water red shrimps caught by gillnet in Ischia island (GSA10). The bars represent the standard deviation (data source: IREPA)
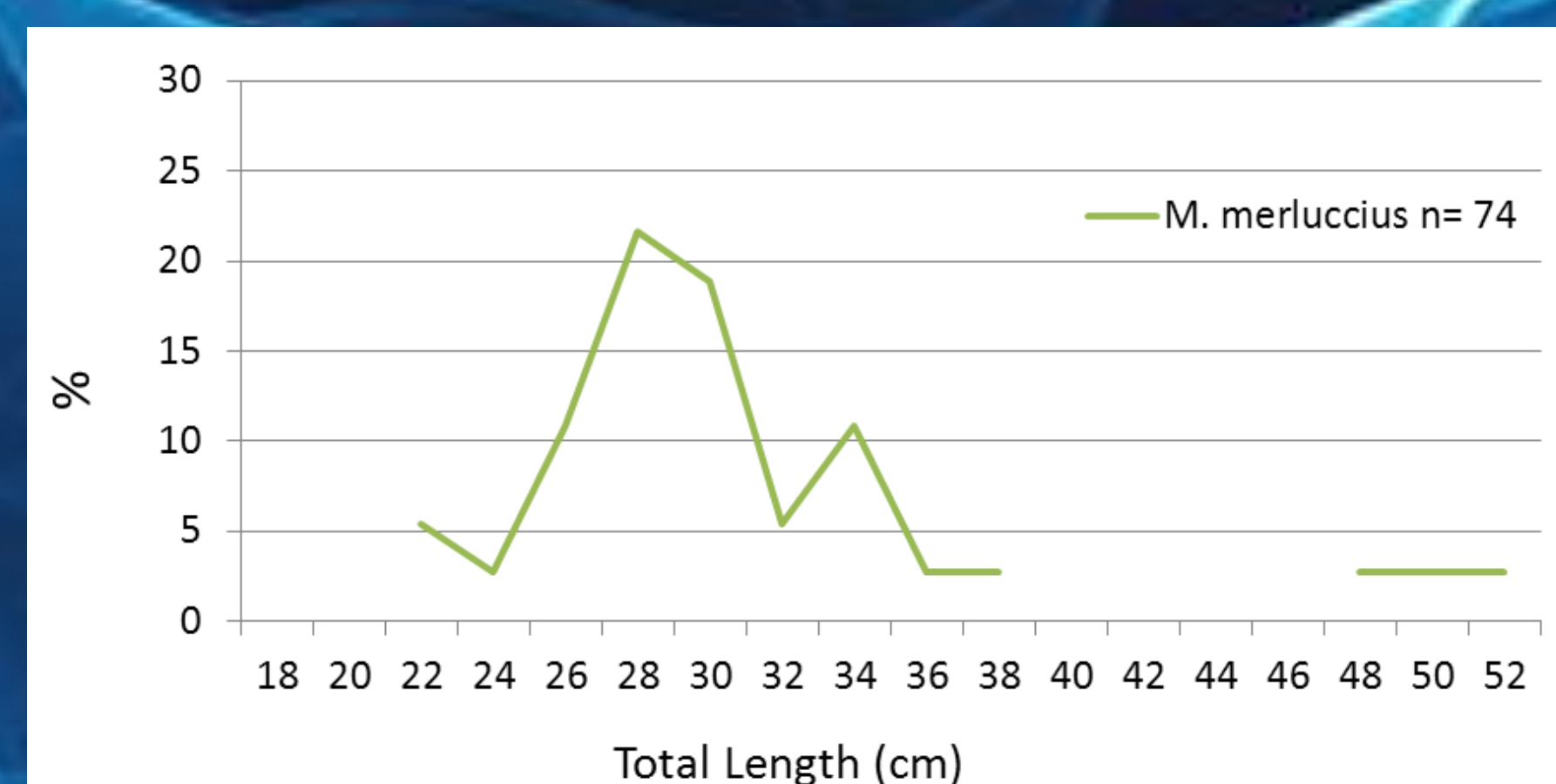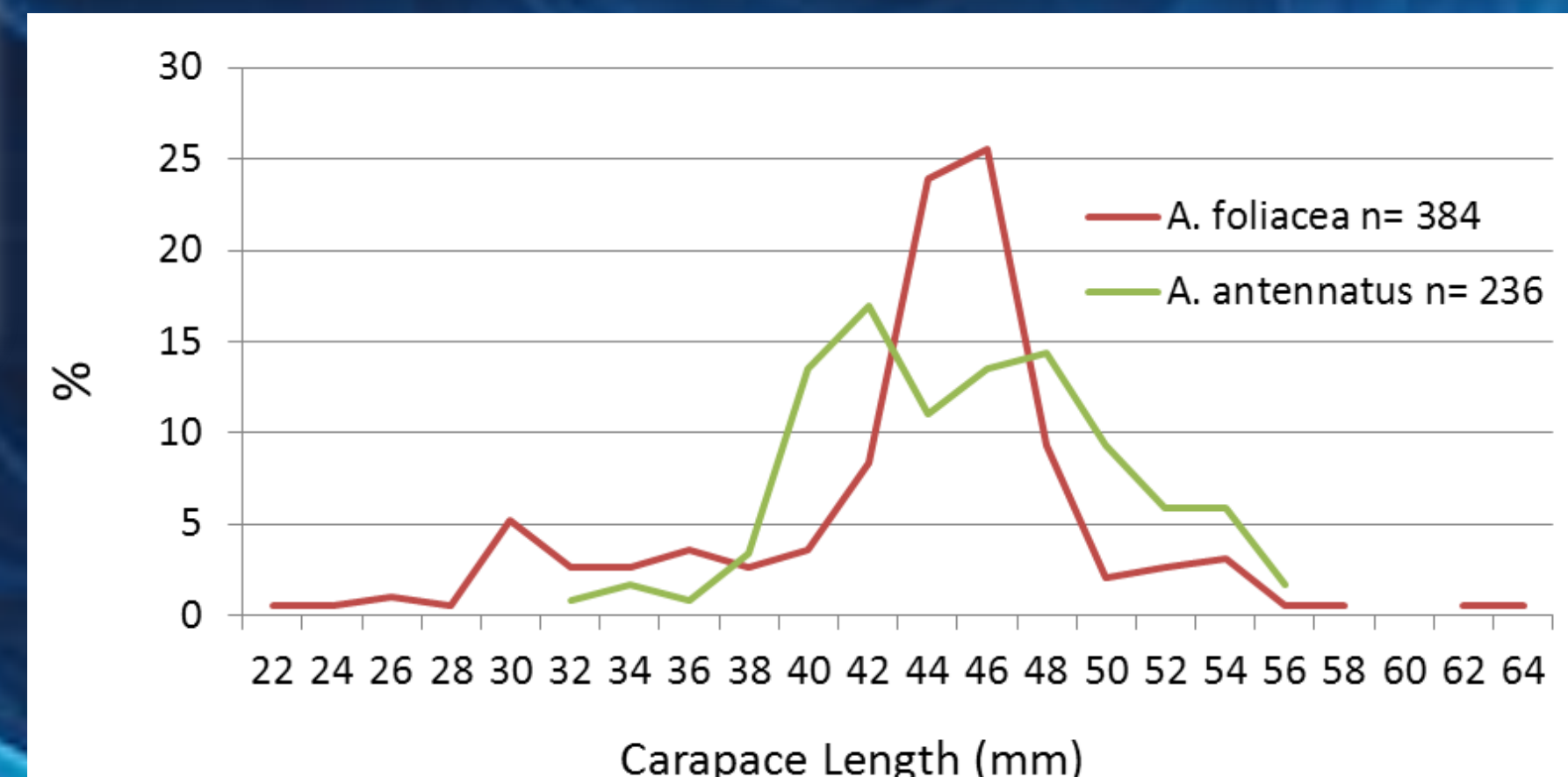

Fig.3 – Catches composition in terms of the weight (A) and number of specimens (B).

Fig. 4 – Length Frequency Distributions of the samples for the target species and bycatch (*M. merluccius*).

Fig.5 – *M.merluccius* as gillnet bycatch

Fig.6 – Map of the fishery area

Fig. 7 –Shrimps caught by gillnet

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 (Cardinale et al., 2012) 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.

References

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