

COMMON OCTOPUS (*OCTOPUS VULGARIS*, CUVIER 1797) COASTAL FISHERY, DURING THE PEAK OF SPECIES REPRODUCTION

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Abstract

The present paper studies the catchability of fyke-nets and pots used in *O. vulgaris* fishery in the Thracian Sea. The analysis of variance showed that the catch per unit effort and the average mantle length of specimens caught by the two gears were similar. The by-catch species are referred.

Keywords : *Octopus*, fishery, Aegean Sea, traps

Introduction

Octopus fishery is widespread in the Thracian Sea, North Aegean Sea. Octopus catches are shared among three fishing gears, trawls, fyke-nets and pots. FRI was funded by the region of Eastern Macedonia-Thrace to study the catches of fyke-nets and pots at the peak of the reproductive period for the species *Octopus vulgaris*. The aim of the study was to support a new legislation on the use of these gears.

Materials and methods

During May to July of 1999, eleven cruises were conducted in the main octopus fishing grounds in the Thracian Sea. The survey was restricted to the depth zone of 30-35 m. The substrata were sand with mud and posidonia meadows. Data were collected by on board sampling on professional fishing vessels using fyke-nets and pots (Fig. 1). Fyke-nets exist in pairs which are bound together with a gillnet; 36-40 mm full mesh, 50 cm high and 3-4 m long. Pots were made from plastic material with volume 5 liters and opening 9-13.5 cm diameter. A fleet of fyke-nets usually enumerate 250-450 pairs, while a fleet of pots enumerate 800-1200 pots. Both gears were usually set for 5-10 days. Species abundance was recorded in number and weight. Individuals were measured in mantle length and weighted. The gonad maturity was recorded in three stages according to Sanchez (1). The by-catches and the food remains in the gears were also recorded.

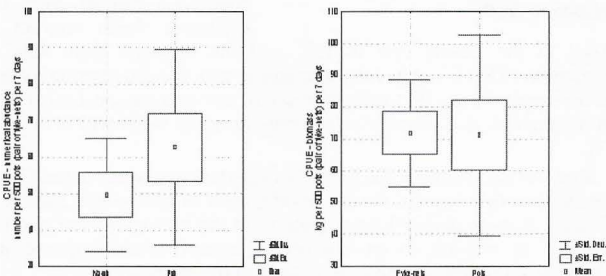


Fig. 1. CPUE values expressed in number and biomass for the two gears, fyke-nets and pots.

Statistical analysis was based on catch per unit of effort (CPUE) values and mantle length frequencies. CPUE values were calculated in terms of individuals or biomass per 500 pots (or pair of fyke-nets) per 7 fishing days. The mean CPUEs and mean mantle lengths were compared between the two gears, using one-way analysis of variance. The *Chi*-square test was used to examine the preference of females to stay in pots gluing their eggs.

Results - Discussion

Using 14280 traps in total, 3700 fyke-nets and 10580 pots, 1096 individuals of the species *O. vulgaris* were caught. The majority of them, 99.45 %, were recorded at the third maturity stage. The ovaries of females were very large with plenty of eggs, while the spermatophores were visible in the spermatophoric sacs of males. Considering that a pair of fyke-nets operates like a trap, ANOVA indicates no statistical difference ($p > 0.05$) between the mean CPUEs (either expressed in individuals or biomass) for the two gears (Fig 1). However, the values of standard deviations for the two gears indicate that the CPUE of fyke-nets varies less than pots. This is because the fyke-nets work like trap while pots catch-ability is highly dependent on octopus diel activities. Comparing the mean mantle lengths of the octopus caught in the two gears, ANOVA shows no statistical difference ($p > 0.05$). The *Chi*-square test denotes that there were no significant difference between the male-female ratio in the two gears.

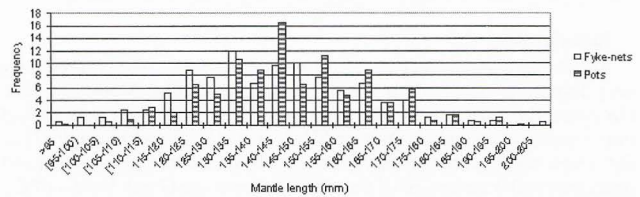


Fig. 2. *Octopus vulgaris* mantle length frequencies for the catches of the two gears.

The only by-catches in pots were gobids of the species *Gobius niger* and glued eggs of it inside the pots. From the remains of the preys which were found inside the pots were identified mainly crabs, *Liocarcinus depurator* and *Goneplax rhomboids* and less frequent the species *Gobius niger*, *Ophidion barbatum*, *Conger conger*, *Cepola rubescens*, *Scyllorhinus canicula* and *Eledone moshata*. We also found bivalves and gasteropods. During the last sampling in the total of 1050 pots 5 octopus males were found as preys of females, and it was denoted that both sexes were mature, third stage. In the fyke-nets as by-catches were recorded the species *L. depurator*, *G. rhomboides*, *Homarus gammarus*, *Palinurus elephas*, *C. conger*, *Spicara flexuosa*, *P. physis*, *Mulus surmuletus*, *Muraena elena*, *Diplodus annularis*, *Scorpaena porcus*, *Scorpaena notata*, *S. canicula*, *Trachurus trachurus*, *Raja miraletus*, *E. moshata* and *Sepia officinalis*. Also eggs of the species *Loligo vulgaris* were stack outside the trap.

From our results it seems that fyke-nets are traps which at the beginning catch fishes and crabs (due to the existence of gill-nets which drive them inside) and furthermore they attract octopus. These sequential catches explain why the gear is efficient after 5-10 days of setting. On the other hand, pots offer a shelter to the octopus in no rocky places. However, the variability of weather conditions, in relation to the stability of the light plastic pots to the current, affects the catches. It was also observed that during full moon the catches in pots were lower than the average. Stack octopus eggs inside pots were found only 4 times out of the total of pots used. However, it seems that the longer time the pots in the sea the more pots with stack eggs inside, because the better the adaptation of the animal to the new environment.

Reference

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