EVALUATION OF THE PURPLE DYE MUREX *BOLINUS BRANDARIS* (MOLLUSCA: GASTROPODA) POPULATION AS A NEW FISHERY RESOURCE IN THE GULF OF ROSES (CATALAN COAST, NW MEDITERRANEAN)

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Abstract

Length frequency distribution, sex ratio and catch per hour (CPUE) of *Bolinus brandaris* sampled with a new gear design called the sweep bottom turning gear in the Gulf of Roses (NW Mediterranean) were analysed. A total of 3754 specimens (shell length = 22.66-119.40 mm, sex-ratio = 1:1.1 in favour of females, CPUE = 1.22-30.70 kg h^{-1}) were measured from 36 experimental hauls.

Keywords: Bolinus brandaris, population, fisheries, north-western Mediterranean

Introduction

The purple dye murex, *Bolinus brandaris*, constitutes a resource of local importance in different Mediterranean areas. Off the Catalan coast (NW Mediterranean) this species can only be fished in the two southernmost regions of Barcelona and Tarragona, using a type of dragged gear. During recent years, incidental catches of *B. brandaris* have been increasing in the Gulf of Roses (northern region of Catalan coast) although there is no fishery targeting on this species. The local fisher's association requested permission from the authorities to exploit this resource with a new gear design called the sweep bottom turning gear or "radasses". The aim of this study was to evaluate the local *B. brandaris* population in view of its future exploitation.

Material and methods

Data were collected by onboard sampling during March-April 2001 in the Gulf of Roses. Thirty-six experimental hauls were performed by commercial fishing vessels at a depth range of 9 to 50 m. The gear used was the sweep bottom turning gear that consists of a trammel net of 150 m long and 2 m high in which both the lower and upper lines carry weights. In other words, the net has two lead lines that hold it flat on the bottom. The stretched mesh size was 50 and 240 mm for the inner and outer panels of the net respectively. The net was towed from 1 to 3 hours and the towing speed was between 1 and 2 knots. A representative sample of the catch was taken from each haul. The shell length (SL, mm) and shell width (SW, mm) of every individual were measured, with a precision of 0.1 mm, using an automatic vernier caliper. Also the sex ratio of the sample and the total weight of the catch of each haul were recorded. Available data on total monthly landings of *B. brandaris* from the fishing port of Roses were used to infer the evolution of the abundance during the last years.

Results and discussion

A total of 45896 individuals of *B. brandaris* weighting 754.44 kg were caught. The CPUE (kg per hour) ranged between 1.22 and 30.70 kg h^{-1}. A subsample of 3754 specimens was measured. The size of the specimens ranged from 22.66 to 119.40 mm SL (mean ± S.E. = 70.80 ± 11.80 mm) (Fig. 1) and from 10.01 to 57.46 mm SW (mean ± S.E. = 32.60 ± 5.92 mm) respectively. The SL of females (N = 719) ranged from 28.05 to 105.05 mm (mean ± S.E. = 70.79 ± 11.47 mm) and that of males (N = 647) ranged from 32.55 to 119.40 mm (mean ± S.E. = 70.84 ± 10.62 mm). The sex was determined in 1366 specimens and females comprised 52.64% of the sampled population. The SL range and the mean SL reported here are higher than those reported for the exploited population of Sant Carles de la Ràpita (SL range between 16 and 90 mm, mean SL = 52 mm) (as in 1).

The landings of *B. brandaris* showed a pronounced seasonality. The maximum landings during the year in Roses occurred in late spring and early summer (May, June and July; 1000 kg/month) coinciding with the ripening of the gonads and the spawning aggregations. Due to the seasonal rotation of the artisanal fishery, the lowest landings occurred in autumn coinciding with the resting phase of reproductive cycle (September, October and November; 200-300 kg/month). This contradicts a previous study that reported maximum landings in late autumn and winter and minimum landings in summer (as in 1). Commercial landings (landed catch per vessel, CPUE) exhibited an increasing trend from 1994 to 2002 suggesting that the fishery has not attained the maximum sustainable yield.

Our results showed a well structured length frequency distribution of *B. brandaris* from Roses with specimens that surpassed the 100 mm of shell length, an exceptional length for this species, result of a non-exploited population.

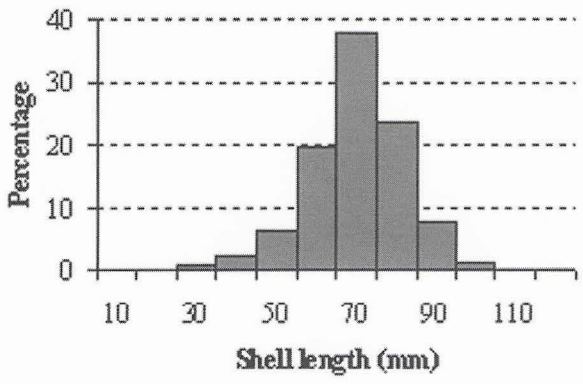

Fig. 1. Shell length frequency distributions of *Bolinus brandaris* from Gulf of Roses.

References

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