

FISHERY AND BIOLOGY OF *ARISTEUS ANTENNATUS*, RISSO 1816 ON MAJORCA ISLAND WATERS

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The deep water shrimp *Aristeus antennatus* is the deepest exploited species of the Western Mediterranean and one of the most important resources for the bottom trawl fishing fleet of the Majorca Island where 40 vessels out of 60 specialise in fishing for shrimp. Although the catches constitute only 5-7 % of the total catch, it is among the main species, in terms of commercial importance, reaching more than 25 % total incomes. The shrimp is mainly fished between 400 and 850 meters depth on muddy bottoms. We study here some biological aspects of *A. antennatus* in the Western Mediterranean, carried out in Majorca, analysing growth and reproductive aspects. A total of 6212 females and 1960 males of *A. antennatus* were collected by commercial bottom-trawl gear during 1992, from sampling carried out monthly and quarterly during the reproduction period, either on board commercial trawlers or from landings. Sex, maturity stage and size (carapace length, in mm, taken the right orbital margin to the mid posterior edge of the carapace) were taken. The annual length frequency distribution, obtained from the monthly samplings performed, showed a range of exploited size comprised between 15 to 61 mm Lc in females and 15 to 38 mm in males. The mean size was 36 mm in females and 26 mm in males (fig. 1).

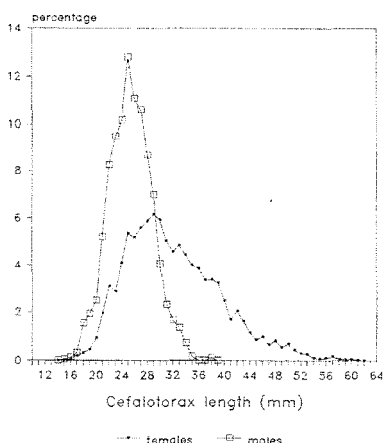


Fig. 1. Mean-year length frequency distribution

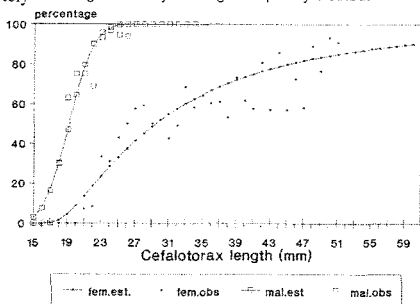


Fig. 2. Maturity as a function of length

The size at first maturity was estimated by running the program LIONOR and was found to be 29 mm in females and 19 mm in males (fig. 2). The reproduction period last several months, from April to October. The highest proportion of spawning females was found during June, July and August (fig. 3). The sex ratio estimated from catches was very far from the relation-ship 1:1, females constituted the major part of the catch, between 87 and 61% (fig. 4). The parameters of the length-weight relationship were estimated from the sampling mentioned above and were :

	a	b	r	n
females	0.00299	2.4139	0.9491	2447
males	0.00511	2.1470	0.9079	630

Parameters of the von Bertalanffy growth equation Loo and k were estimated for each sex by running the program ELEFAN (GAYANILO *et al.*, 1988) on the overall size distribution:

	L _∞ mm	k yr ⁻¹	t ₀
females	74.0	0.38	0.07
males	46.0	0.47	0.13

The results obtained for the monthly evolution of the gonadosomatic index (GSI) and the percentage of mature specimens are very similar to those obtained in other areas of the Western Mediterranean. Growth of the population showed females growing at a relatively slower rate than males. All this results show that the population of *A. antennatus* is overexploited as in other areas of the Western Mediterranean.

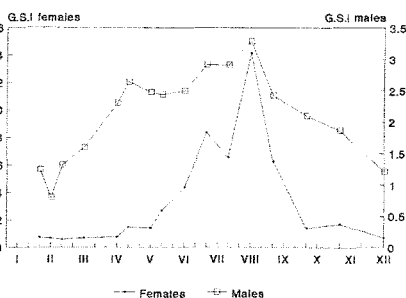


Fig. 3. monthly evolution of gonadosomatic index by females and males

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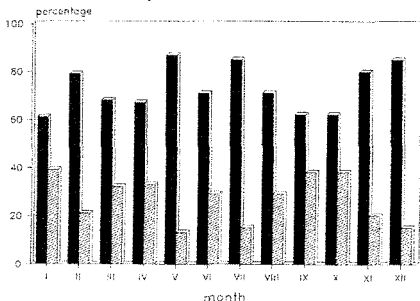


Fig. 4. proportion of males and females