ANNUAL REPRODUCTIVE CYCLE OF *TRIGLA LYRA*

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Abstract

Seasonal histological changes of the gonads and the condition factor and the gonadosomatic, hepatosomatic and mesenteric fat indices of *Trigla lyra* were studied for both sexes. Sexual dimorphism was not found. The standard length at first maturity was 200 mm for the females and 180 mm for males. Spawning in Western Mediterranean occurred in late winter, early spring.

Keywords: Trigla lyra, reproduction, annual cycle

The piper gurnard (*Trigla lyra* L., 1758) lives in soft and rocky substrates off the coast up to depths of 700 m (1). In the present work, the seasonal histological changes of the gonads of piper gurnard were studied. The condition factor as well as the gonadosomatic, hepatosomatic and mesenteric fat indices were analysed.

The annual development of the indices in relation to the maturation phase of the gonad is shown in Figure 1. The graphs show the average monthly values of these indices related to reproduction for both sexes. The ovaries were classified according to the more developed type of oocyte they contain (2), and the stage of development of the testis was determined following the criteria of Grier (3).

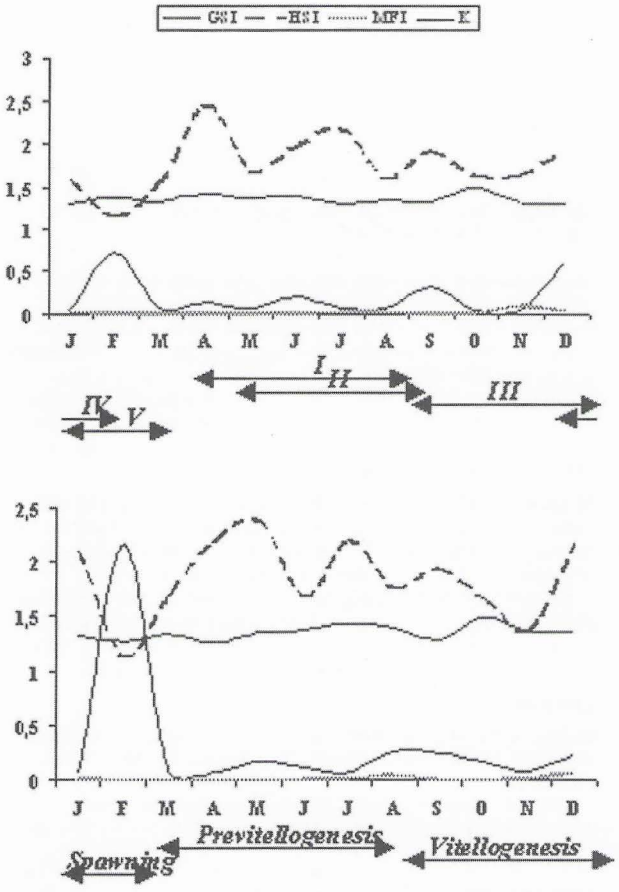

Fig. 1. Annual development of the indices related to reproduction. Below each graph are details of the stage which the gonads are going through.

The gonadosomatic index (GSI = weight of gonad / eviscerated weight) showed monthly significant differences for both sexes (ANOVA, p=0.000 for males, and p=0.029 for females). The energy used up in reproduction is clearly depicted in the changes of the hepatosomatic (HSI = weight of liver / eviscerated weight) and mesenteric fat (MFI = weight of mesenteric fat / eviscerated weight), both of which showed their minimum values after spawning, although we only detected monthly significant differences for the HSI of females (ANOVA, p = 0.002). The condition factor (K = eviscerated weight / standard length^3) was not affected by reproductive activity, since its monthly variations are not considered statistically significant (ANOVA, p>0.05).

The reproductive cycle of piper gurnard started in March, when both the ovary and the testes were in the initial phases of development. In September, and coinciding with the appearance of the first vitellogenic oocytes in the ovaries and the formation of the first spermatozoa in the testes, the activity of the gonads begun to increase progressively. The functional maturity period of the testes, when the lobules and all the ducts were full of sperm, coincided with the observed spawning period (between January and February).

Information about the spawning period of piper gurnard is a little contradictory (4,5,6) probably because of the difficulty to obtain large specimens. Females matured only after they reach a standard length of 200 mm, and males a standard length of 180 mm. In this way, although we only detected mature oocytes and postovulatory follicles in January and February, a more prolonged spawning period up to March cannot be ruled out, because of the lack of large specimens caught in this month.

The sex ratio was 1.4 in favour of males and differed significantly from 1 (χ^2=8.20, g.d.l.=1, p=0.004) especially for smaller sizes. This agrees with the results from Greek waters (7, 8).

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