

REPRODUCTIVE CYCLE AND FECUNDITY OF BLUE-MOUTH (*HELICOLENUS DACTYLOPTERUS*, DELAROCHE, 1809) IN THE EASTERN MEDITERRANEAN (IONIAN SEA, GREECE)

Anna Terrats* and George Petrakis

National Centre for Marine Research, Hellinikon, Greece - annate@ncmr.gr, gpetr@ncmr.gr

Abstract

In this work, preliminary results on the reproductive cycle and on the fecundity of *Helicolenus dactyloperus* are presented. The breeding period of the species was found to occur from December to March in the Eastern Mediterranean. Total fecundity ranged from 330639-9559 and batch fecundity ranged from 22630-91 oocytes. Ovaries contained a pronounced bimodal distribution of oocyte diameters, ranging from 0.22 to 0.64 mm and from 0.7 to 1.24 mm, indicating that the blue-mouth exhibits group-synchronous oocyte development.

Keywords : *Ionian Sea, reproduction, spawning, teleostei.*

Introduction

The blue-mouth, *Helicolenus dactyloperus* (Delaroche, 1809), is a benthic species which inhabits the seabed at between 200 and 1000 m depth (1). It is widely distributed in the eastern Atlantic, from the Norwegian coasts to the south-west coast of Africa (2). In the Mediterranean, blue-mouth is found along the continental shelf edge and slope, where it is caught as by catch species of the bottom trawl, long line and gill net fishery (3).

Material and methods

Samples of blue-mouth were collected on a monthly basis with a hired commercial bottom-trawler in the East Ionian Sea (West Coast of Greece) during July 1999 to June 2000. The depths of the sampling stations ranged from 300-750 m. A total of 1229 specimens were collected (462 males and 767 females). The maturity stage was determined using the gross sexual classification scale of Nikolsky (4). Spawning period was determined from the analysis of the monthly evolution of both the percentages of mature individuals and the mean gonadosomatic index (GSI) throughout the sampling period. All individuals classified as stages I to II were considered to be sexually immature, stage III as pre-spawning and those classified as stages IV to VI were considered to be sexually mature. The volumetric method (5) was used for the study of the fecundity. Overall, 22 gravid gonads were examined. Oocytes were sized and counted. Hydrated and non hydrated oocytes were counted and measured. Steel screens with openings 1, 0.5 and 0.25 mm were used to separate the oocytes in size ranges.

Results

The occurrence of gravid and spawning (stages IV-V) female blue-mouth is predominant during winter months (January-March), indicating the spawning time (Fig. 1). On the other hand, pre-spawning females were found from November to July. The GSI of the females was high during winter months (Fig. 2). In December there is an increase that peaks in February (1.27). It thereafter decreases slightly in March, and in June approaches again the low values (0.19) similar to the rest of the year.

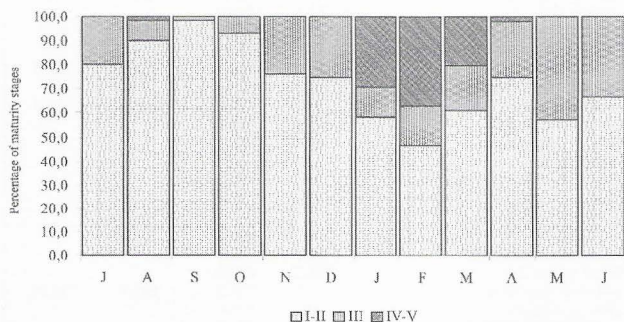


Figure 1. Monthly percentages of immature (I-II), pre-spawning (III) and spawning (IV-V) of female blue-mouth.

Ovaries contained a pronounced bimodal distribution of oocyte diameters ranging from 0.22 to 0.64 mm and from 0.70 to 1.24 mm (Fig. 4). The mean diameter of hydrated oocytes was found to be 0.834 mm. Total fecundity fell into the range 330639-9559 oocytes while batch fecundity ranged from 22630-91 oocytes.

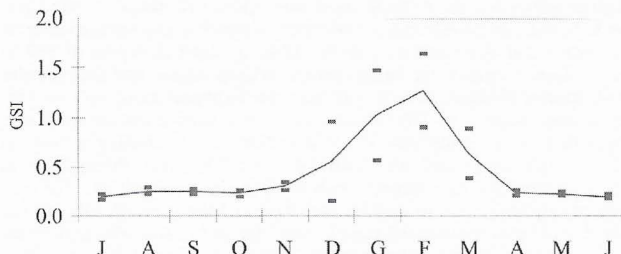


Figure 2. Annual cycle of the gonadosomatic index (mean +/- SD) of female blue-mouth.

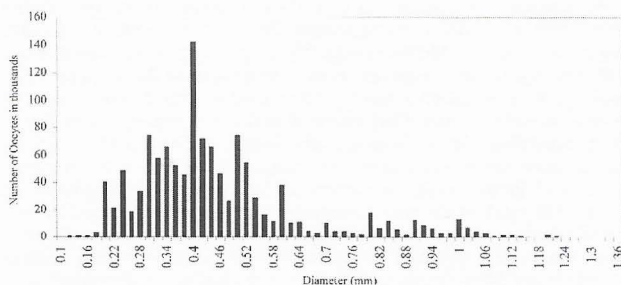


Figure 3. Diameter distribution of the oocytes.

Conclusion

The seasonal patterns of the percentage of mature blue-mouth (stage IV and V) and the mean GSI, indicate the existence of a short reproductive period, which extends from December to March. From the preliminary results of the fecundity it can be said that this species exhibits group-synchronous oocyte development.

References

- Whitehead, P.J.P., Bauchot, M.L., Mureau, J.C., Nielsen, J. and Tortonese, E., 1986. Fishes of the north-eastern Atlantic and the Mediterranean. UNESCO, Paris.
- Hureau, J.C. and Litvinenko, N.I., 1986. Scorpaenidae. pp. 1211-1229. In: Whitehead, P.J.P., Bauchot, M.L., Hureau, J.C., Nielsen, J., Tortonese, E. (Eds.), Fishes of the North-eastern Atlantic and the Mediterranean, Vol. 3, UNESCO, Paris.
- Bauchot, M. L., 1987. Scorpaenidae. pp. 1290-1300. In: Fischer, W., Bauchot, M.L., Schneider, M. (Eds.), Fiches FAO d'identification des especes pour les besoins de la peche (revision 1). Méditerranée et mer Noire. Zone de pêche, 37, Vol.2. FAO, Rome.
- Nikolsky, G.V., 1963. The Ecology of Fishes. pp. 352. Academic Press, London.
- Humanson, G.L., 1979. Animal tissue techniques. . 560 pp. W.H. Freeman and Co., San Francisco.