

REPRODUCTIVE ASPECTS OF RED MULLET (*MULLUS BARBATUS*) IN THE ALBORAN SEA (WESTERN MEDITERRANEAN)

Del Árbol J., J. Rey and L. Gil de Sola *

Instituto Español de Oceanografía. Muelle Pesquero s/n. Málaga, Spain

Abstract

The spawning period, length at first maturity and reproductive biomass of red mullet (*Mullus barbatus*) in the Alboran sea (western Mediterranean) were studied from data collected during five seasonal trawl surveys between 2001 and 2002.

Keywords: Red mullet, reproduction, spawning, Alboran Sea, Mediterranean

Introduction

Red mullet (*Mullus barbatus* L.) is a target species in the Alboran Sea (western Mediterranean) where it is mainly captured with trawlers, between 50 and 150 m, and gillnets in shallow waters. In the present study, some aspects of the reproductive biology of red mullet in the Alboran Sea were investigated.

Material and methods

Data were collected from five seasonal trawl surveys off the Spanish littoral in the Alboran Sea carried out with R/V *Cornide de Saavedra* and *Fco. de Paula Navarro* between Spring of 2001 and 2002.

A total of 190 hauls were conducted between 40 and 796 m, using a GOC73 gear with mesh size of 40 mm and based on stratified random sampling (1). Total length (TL) at first maturity was calculated using the least square method.

The sample sizes were: 107 (Spring 2001), 137 (Summer 2001), 457 (Autumn 2001), 169 (Winter 2002) and 213 (Spring 2002). The average reproductive stock biomass was calculated by season following Bertrand *et al.* (1)

Results and discussion

Most females (Fig. 1) and all males were premature or mature in all sampling seasons, except the recruitment season (autumn), where immature individuals predominated.

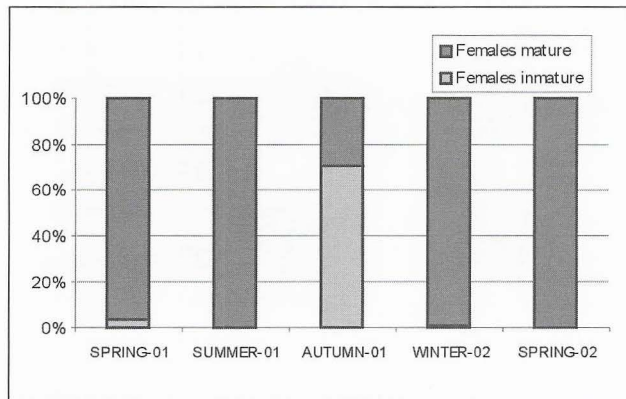


Fig. 1. Proportion of mature *Mullus barbatus* females in the Alboran Sea between spring 2001 and 2002.

Among females, however, spawning individuals were only found in spring (April-June). Males also presented a spawning peak in spring, though a low proportion of rippling males were also found during the rest of the year (Fig. 2). The total length (TL) at first maturity was 11.65 cm for males and 12.23 cm for females, both indicating an age of 1 yr (2).

The average reproductive stock biomass calculated by season (Spring 01, Summer 01, Autumn 01, Winter 02 and Spring 02) and sex were: 12.053 (SE: 7.71), 14.685 (SE: 7.79), 18.347 (SE: 7.78), 4.62 (SE: 2.07) and 11.07 kg/h (SE: 4.99) for males and 14.095 (SE: 9.01), 8.819 (SE: 4.67), 23.876 (SE: 10.12), 4.85 (SE: 2.18) and 14.996 kg/h (SE: 6.77) for females (Fig. 2).

These seasonal changes could be due to the migration pattern of the species (3). The decline in the biomass of mature females could be explained by migration either to shallow waters (<50m), where trawling is not allowed, or to inaccessible rocky bottoms.

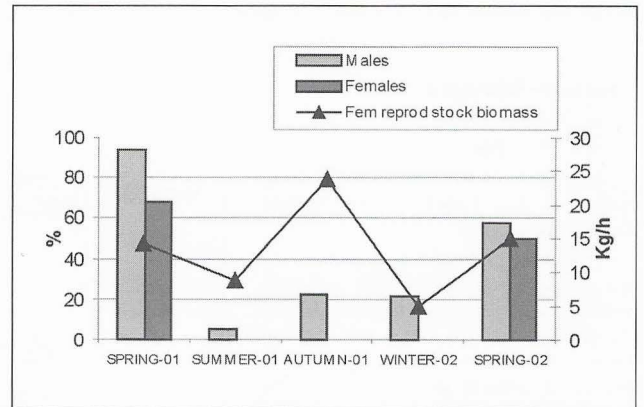


Fig. 2. Proportion of spawning *Mullus barbatus* in the Alboran Sea between spring 2001 and 2002. Average female reproductive stock biomass (>12 cm of length) is also shown.

References

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