PRELIMINARY RESULTS ON REPRODUCTIVE BIOLOGY OF TRACHURUS MEDITERRANEUS (STEINDACHNER, 1868), IN THE NORTHEASTERN SEA OF MARMARA

Nazli Demirel [1]* and Ahsen Yüksek [1]
[1] Institute of Marine Sciences and Management, Istanbul University - ndemirel@istanbul.edu.tr

Abstract
Mediterranean horse mackerel, *Trachurus mediterraneus*, is one of the most important commercial species in Turkish territorial waters. Results from March to October 2009 show that spawning season of Mediterranean horse mackerel starts at early May and ends at early September in NE part of the Sea of Marmara. Mean GSI values and b parameters show similar variations with synchronized opposition of CF values in monthly results.
Keywords: Reproduction, Fishes, Marmara Sea

Introduction
Trachurus mediterraneus is distributed throughout the Mediterranean, the Black Sea, and the Northeastern Atlantic [1; 2]. Mediterranean horse mackerel is the most abundant commercial fish species after anchovy in the Sea of Marmara [3]. The aim of the present study is to determine the reproductive cycle of the species in the Sea of Marmara. The Sea of Marmara is an enclosed basin where Atlantic-Mediterranean originated commercial pelagic fishes spawn while migrating from the Mediterranean and the Aegean Sea to the Black Sea [4].

Materials and Methods
Samples were obtained randomly from catches of commercial fishing vessels from March to October 2009, caught from 60 to 100 m depths. A total of 523 specimens (232 males, 230 females) were measured. Body weight (W) and total length (TL) were measured (W to the nearest 0.1 g and TL to the nearest mm), to analyse the length–weight relationship. Sex was determined macroscopic aspect of gonads. Gonads of all specimens were dissected and weighed to the nearest 0.001 g in order to calculate the gonosomatic index (GSI).
In addition for further analysis: 1-) Gonads were fixed in 10% buffered formaldehyde solution for determining batch and annual fecundity estimation and histologic studies [5], 2-) Otoliths were sampled for age determination, 3-) Water salinity and temperature profiles were recorded by a CTD system prior to the water quality monitoring project in the northeast part of the Sea of Marmara.

Results
Total length ranged from 11,3-22,5 cm (Fig. 1). The mean GSI reached its maximum values in June and July. Studies on macroscopic aspects of gonads indicated that mature specimens (stage IV in VI maturity classes) were over 11.3 cm for males and 11.7 cm for females (TL).

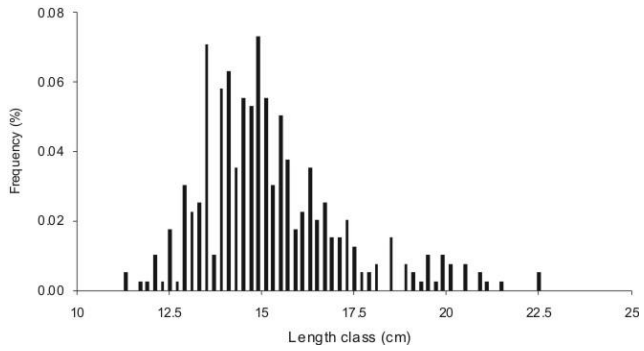

Fig. 1. Frequency of length classes

According to mean GSI values (Fig. 2) and macroscopic aspects of gonads reproductive period appeared to last from early May to late September.
Seasonal variations of the parameter *b* for determining the isometric-allometric growth, shows similarities to GSI variations. From April to August positive allometry was determined while negative allometry was observed in March, September and October.

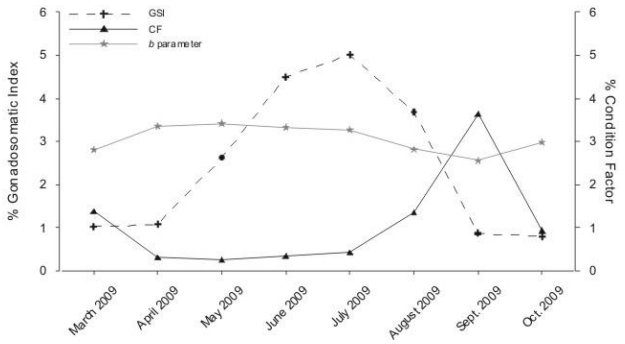

Fig. 2. Monthly variations of mean GSI, CF and *b* parameters value

Discussion
The total length of specimens sampled in northeastern Marmara (11,3 –22,5 cm) does not correspond with the maximum length size up to 50 cm [6; 7]. The lack of bigger specimens could be a characteristic of the local population, overfishing and temperature ranges.
The maximum values of mean GSI were found 5,4% in females in August and 5,2% in males in July. Limited data results are compatible with recent researches on reproductive biology of *T. mediterraneus* in Mediterranean basin [8; 9] although it was reported that values of 10% for mean GSI was common during the reproductive period [8].

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