SOME BIOLOGICAL PARAMETERS OF SPRAT *SPRATTUS SPRATTUS PHALERICUS* (RISSO1826) IN THE TURKISH BLACK SEA COAST

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Abstract
Some biological parameters of the sprat, *Sprattus sprattus phalericus*, collected from Turkish Black Sea coast between 2008 and 2009 were investigated. Sprat is an important food resource for many top predators. In present work, length frequency distribution, relationship between length and weight, sex ratio and condition factor of sprat have been studied.
Keywords: Black Sea, Biometrics, Pelagic

Introduction

Black Sea sprat, *Sprattus sprattus phalericus,* is one of the most abundant small pelagic fish species in the Black Sea. It is an important food resource for many top predators. The sprat is a small, multiple (batch) spawning species with a protracted spawning season and a large number of spawning per year. According to 2006 fishery statistics, 7311 tons of sprats were harvested in Turkey of which 6681 tons were caught from the Black Sea and 630 tons from the Sea of Marmara [1].

Material and Method

Sprats were caught as by-catch in the purse seine fishery in 2009. The total length (L) and weight (W) were measured and sex was determined by gonads. The total number of investigated individuals was 334. The length-weight relationship was derived as $W=aL^b$, where W: weight (in g); L length (in cm), a: y-intercept and b: slope, characterizing the growth rate. The condition factors (CF) are computed by Fulton's index [2] as

$$CF = W*100/L^3$$

where W is average weight and L is average length by size groups.

Results and Discussion

The sample was composed of 202 females ranging between 7.20 and 10.2 cm TLand 2.15 and 7.11 g, and 132 males ranging between 6.80 and 10.20 cm TL and 1.68 and 6.35 g. The sex ratio was significantly different from 1:1 (χ^2=14.67; df=1; P<0.05). The input data for average lengths and weights of sprat are given in Table 1. According to data in Table 1 and using power function, the coefficients "a" and "b", characterizing weight-length relationship, have been estimated.

Tab. 1. *Sprattus sprattus* and some biological parameters

Parameters	F	M	Total
L±SE	8.74±0.042	8.69±0.053	8.72±0.032
W±SE	3.80±0.060	3.57±0.073	3.69±0.046
$W=aL^b$	$0.0066L^{2.919}$	$0.0065L^{2.911}$	$0.0070L^{2.885}$
r^2	0.87	0.85	0.85
CF (%)	0.518	0.494	0.507
n	202	132	334

Condition factor between differences between females and males was not significant in present study (P>0.05). The length frequencies of sprats are shown in Figure 1. The obtained results are not close to those, calculated by Sahin (1999) [3]. Sahin (1999) reported that the mean length values were 10.69 cm for both sexes in 372 specimens. According to our results, the average sprat length has been lessening in decade.
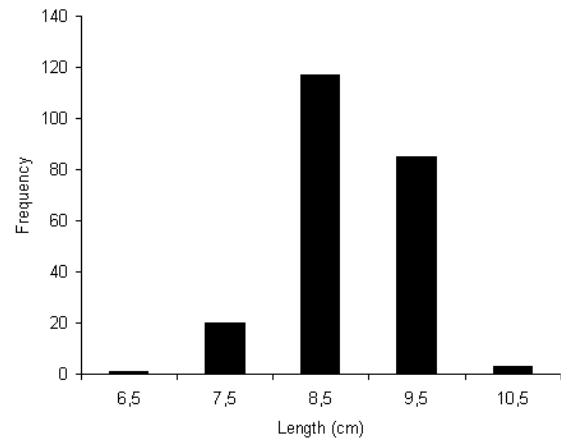

Fig. 1. Length frequency distribution of the sprat caught in the south-eastern Black Sea

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