

A preliminary study of the biology of the spotted flounder, *Citharus linguatula*, in the north Aegean Sea

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The spotted flounder, *Citharus linguatula* L.1758, is one of the most common Pleuronectiformes species in the Greek Seas. It is distributed in waters shallower than 200 m and its commercial importance coincides with specimens larger than 18 cm. The few studies that exist on the spotted flounder deal with its distribution (JARDAS, 1983) and feeding habits (JARDAS, 1984) in the Adriatic Sea, while there are also data on its eggs and larvae in the Algerian waters (MARINARO *et al.*, 1978).

The objective of this work is to present preliminary results on the length and the bathymetrical distribution, the length - weight relationship and the age of the spotted flounder in the north Aegean Sea.

In June 1990, 596 spotted flounders were collected at depths ranging from 70 to 110 m in the north Aegean Sea, by means of a commercial fishing trawler. In each specimen total length was recorded to the nearest mm and weight to the nearest g. Age determination was based on otolith readings.

Lengths were comprised between 6 and 24 cm (Fig. 1). The bulk of the stock was 11 - 14 cm long. Few flounders larger than 18 cm and smaller than 8 cm were collected. The greater number of specimens was fished at waters 100 m deep. A trend of larger individuals to exist in deeper waters was exhibited.

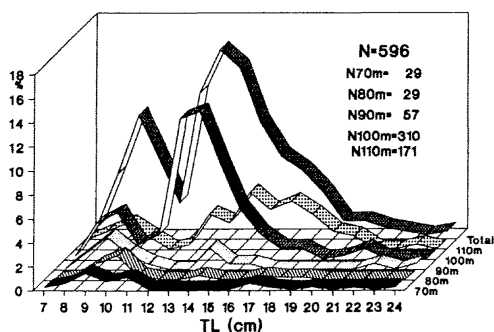


Fig. 1.- Bathymetrical length frequency distribution of the spotted flounder in the Aegean Sea in 1990.

Male spotted flounders were the 43.2% of the stock; they were significantly smaller than females (ANOVA : $F=17.232$, $P<0.001$), being encountered more frequently in sizes smaller than 13 cm. Females dominated completely beyond 19 cm.

The parameters of the length - weight relationship are shown in Table 1. Growth in weight was isometrical in females and allometrical in males, yielding fish heavier for their size.

Table 1. Parameters (a, b) of the length - weight relationship, 95% confidence interval (c.i.) of the exponent b, correlation coefficient (r^2) and number (N) of the spotted flounders collected in the north Aegean Sea in 1990.

	a	b	c.i.	r^2	N
Males	$3.71 \cdot 10^{-5}$	3.117	0.0686	0.98	128
Females	$4.60 \cdot 10^{-5}$	3.075	0.0923	0.96	164
Both	$4.01 \cdot 10^{-5}$	3.103	0.0586	0.97	292

Five age groups (O-IV) were determined for males and six (O-V) for females. The mean lengths of the male and female spotted flounders at each age did not display significant differences (Table 2).

Table 2. Mean observed total length at each age of the male and female spotted flounder in the north Aegean Sea in June 1990; c.i.=95% confidence interval, An. Incr.= annual increment, N= number of specimens, t= t-test value.

		Age groups					
		O	I	II	III	IV	V
♂	Mean TL	76.44	108.65	138.61	163.00	187.00	
	c.i.	2.65	6.07	4.49	11.20	-	
	An. Incr.		32.21	29.96	24.39	24.00	
	N	9	17	18	3	1	
♀	Mean TL	80.13	111.14	141.86	168.70	193.75	218.75
	c.i.	4.40	6.42	2.87	4.24	9.15	13.39
	An. Incr.		31.01	30.72	26.84	25.05	25
	N	8	21	22	20	4	4
t		1.37	0.55	1.19	0.93		

REFERENCES

- MARINARO J.Y., BAUMGARTNER N., LEONCINI R. & BARROIS J. M., 1978. -*Pelagos*, 5: 90-100.
 JARDAS I., 1983. - *Acta Biol. Jugosl. (e Ichthyol.)*, 15(2): 23-28.
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