

**FIRST DATA ON SOME ASPECTS OF BIOLOGY AND  
POPULATION DYNAMICS OF ATLANTIC MACKEREL,  
SCOMBER SCOMBRUS L. IN THE ADRIATIC**

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The paper presents the study of some aspects of biology and population dynamics of Atlantic mackerel, *Scomber scombrus* L., from the Eastern Adriatic. Biometry, vertebral counts, age, growth, weight-length relationship, as well as first sexual maturity and sexual cycle were obtained from material sampled monthly during 1991-1993 period.

A total of 1 017 analyzed specimens of *Scomber scombrus* were sampled from commercial landings. Data of Atlantic mackerel length referring to their total ( $L_t$ ), standard ( $L_s$ ) and fork ( $L_f$ ) lengths are expressed in centimetres, weight ( $W$ ) in grams. The vertebrae were counted by lens, from occipital condyle (not counted) to urostyle, included. Mean length-at-age values were estimated from sagitta readings.

Atlantic mackerel mean lengths ranged from 12.2 to 40.1 cm  $L_t$  (Tab. 1).

Age	0+	1+	2+	3+	4+	5+	6+	7+	8+
$\bar{x} L_t$	12.2	21.5	29.7	34.0	36.2	37.6	38.7	39.6	40.1

Table 1. *Scomber scombrus* - Average length per age

The relations of total length ( $L_t$ ) to standard length ( $L_s$ ) and vice versa, of total length to fork length ( $L_f$ ) and vice versa, are best described by the following equations:

$$L_t = 1.0560 L_s - 1.0693 ; L_s = 0.9430 L_t - 0.7437, r = 0.998, P < 0.001$$

$$L_t = 1.0510 L_f + 0.8022 ; L_f = 0.9507 L_t - 0.7437, r = 0.999, P < 0.001$$

A count of 30 vertebrae was recorded in all specimens; a single variant had 29 vertebrae.

The weight ( $W$ ) - length ( $L$ ) relationship was calculated by the equation:

$$\log W = 3.604 \log L_t - 2.9567$$

or in arithmetic transformation:

$$W = 0.0011 L_t^{3.604}$$

A positive allometry was established ( $b = 3.604$ ).

Atlantic mackerel life span was 0 to 8+ years from the collected material.

The following growth parameters were derived for the mackerel stock :

$$L_{\infty} = 42 \text{ cm} ; K = 0.37 \text{ year}^{-1} ; t_0 = - 0.5$$

*Scomber scombrus* attained sexual maturity at the end of the first year of life. Ripe mackerel specimens were found from January to April with the maximum in February. The condition and fatness of mackerel individuals are affected by the gonad cycle.

Approximately, equal sex frequency distribution was recorded in total, with the predominance of males during spawning and females during the inactive phase of their sexual cycle.

