

**First Age Estimates of Albacore, *Thunnus alalunga* Bonn., in the Aegean Sea using scales**

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**INTRODUCTION** Albacore distribution in the Aegean sea is discontinuous with a higher concentration mainly in the north between the Sporadic islands and the peninsula of Chalkidiki where the most important Greek fishery fleet for albacore operates since several years.

Preliminary data on fishing grounds, fishing period, total catch and size distribution are reported by DE METRIO G. et al. (1988) but there is no certain data about the age structure of the stock in this area. Age estimates have been made for albacore in the Central Mediterranean using the scales (CEFALI A. et al., 1982). Some other estimates were performed in the Atlantic using different methods (BEARDSLEY G.L., 1971; BARD F.X., 1974; GONZALEZ-GARCES A. and A.C.FARINA-PEREZ, 1983). This study is a first approach to evaluating the age and the growth of albacore caught in the Aegean sea using the scales.

**MATERIALS AND METHODS** The fork length and the weight of 868 fish in 1986 and 379 in 1987 was measured at Alonisos port. Scales were collected from 219 fish during the autumn of the same years. Date of capture and fork length (FL) were recorded for each specimen. For the age estimation, reading of the scales was performed under an optical microscope. The average lengths (FL) at age were calculated.

**RESULTS AND DISCUSSION** The fork length (FL) of the albacores ranged from 54.8 to 82 cm and the age estimated were from 1+ to 6+ years. The smallest specimen of the sample was 1+ year old while the largest was 4+ years old. A size-age key for 219 albacores grouped in size classes of 2 cm is given in Table I.

Table I. Size-age (estimated) key of the 219 albacores studied. The fork length (FL) is regrouped in classes of 2 cm.

FL (cm)	Estimated age							TOT
	0+	1+	2+	3+	4+	5+	6+	
54-56		1	1					2
56-58		3						3
58-60			2					2
60-62			8	1				9
62-64			20		1			21
64-66			31	10				41
66-68			16	23	1			40
68-70			5	32	1			38
70-72				15	11			26
72-74				4	12			16
74-76				1	10	2		13
76-78					1	1		2
78-80				1	1	2	1	5
80-82					1			1

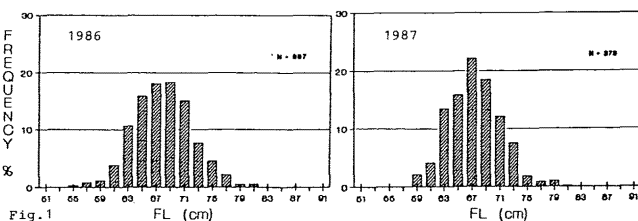
The age classes most present in the sample were classes II, III and IV with a percentage of 37.9%, 39.7% and 17.8% respectively. Very few individuals, practically 4.6% of the sample, were estimated as belonging to the age classes I, V, and VI.

Size distribution of the catch in 1986 and 1987 is reported in the Fig.1. The average fork length of the albacore was 68 cm in 1986 and 67.6 cm in 1987 where the average weight was 5.8 kg and 5.7 kg respectively. Most of the caught fish lengths (FL) ranged between 60 and 74 cm correspond to individuals of the second, third and fourth age classes, 39.3% - 41.8% - 12.8% in 1986 and 37.5% - 39.9% - 12.2% in 1987 respectively, according to the estimated size-age key. In the table II, the average values of length (FL) at age classes are reported.

Table II. Average fork length at age classes and standard deviation estimated.

AGE CLASSES	n	FL (cm)	st.deviation
I	4	56.5	0.8
II	83	64.5	2.5
III	87	68.8	2.6
IV	39	73.0	2.9
V	5	77.0	1.5
VI	1	79.0	-

Taking into account the very limited number of the individuals in the sample, smaller than 60 cm and bigger than 76 cm, we do not consider the estimates of the length at age for the classes I, V and VI as representatives. It is obvious that a sample including more individuals of the extreme length classes should be studied. Furthermore results obtained by various authors using the same or different methods differ; so given the importance of a correct age estimation for the stock assessment, a validation of the used method must be performed.



**REFERENCES**

- BARD F.X. (1974) Etude sur le germon (*Thunnus alalunga*, Bonnaterre 1788) de l'Atlantique Nord. Elements de dynamique de population. ICCAT Collect.Vol.Sci.Pap., Madrid 2:198-224
- BEARDSLEY G.L. (1971) Contribution to the population dynamics of Atlantic albacore with comments on potential yields. Fish.Bull. U.S.69
- CEFALI A., A.POTOSCHI, G.DEMETRIO, G.PETROSINO (1986) Biology and fishing of germon, *Thunnus alalunga* (Bonn 1788) observed for a four-year period in the gulf of Taranto. OEBALIA 1986, vol.XIII, N.S.
- DE METRIO G., P.MEGALOFONO, S.TSELAS, N.TSIMENIDES (1988) Fisheries for Large Scombroids in Greek waters: Catches of *Thunnus alalunga* (Bonn. 1788) FAO Fisheries Report No 412
- GONZALEZ-GARCES and A.C.FARINA-PEREZ (1983) Determining age of young albacore, *Thunnus alalunga*, using dorsal spines. U.S.Dep.Commer., NOAA Tech.Rep.NMFS 8