

**Introduction**

The data on variations in anchovy fat reserves on the one hand and weight of gonads and the most advanced gonad stages, - V, VI and VII - on the other, during successive months of the 1975-1984 period are presented.

**Material and methods**

A total of 12752 anchovy specimens ranging from 14.0 to 17.5 cm were used since the fish length affects the level of mesenteric fat in anchovy (SINOVCIC, 1978). Mesenteric fat was estimated by the scale used by SINOVCIC (*ibid.*) for estimation of mesenteric fat in anchovy. The scale consists of five grades, from 0 to 4, 0 denoting very slim fish and 4 markedly fat fish.

**Results**

The mean percentage of mesenteric fat grades in the visceral cavity point to the greatest fat quantities in January, when grade 4 presence amounted to 74 % (Fig. 1). This value is the result of an increase of mesenteric fat started in September and proceeding for the successive months. The significant presence of grade 3 was obvious then, and particularly that of the grade 4, which from 57 % in November increased to 71 % in December. During spring a decrease trend is evident which becomes pronounced in summer : in July, and particularly in August, when lowest mesenteric fat quantities were recorded. In August, the 0 grade prevailed (73 %), followed by grade 1 (23 %), whereas the grade 2 was very poorly represented (4 %). Grades 3 and 4, denoting fattest fish were not recorded from a single specimen (Fig. 1). Thereafter a gradual increase in mesenteric fat was recorded in anchovy, indicated by the records of grades 3 and 4. Due to such variations in mesenteric fat during the year, i.e. its greatest levels at the end of winter after unfavourable feeding conditions, and lowest levels in summer when feeding conditions are considerably better, it was assumed that quantity of mesenteric fat was affected by anchovy sexual cycle.

Fig. 2. depicts the oscillations in gonad weight and most advanced stages of gonad maturity (V, VI and VII) compared to the oscillations of greatest mesenteric fat levels expressed as grade 4. Gonad weight and most advanced gonad maturity stages reflect the changes in anchovy sexual cycle. Graphic representation points to an inverse relationship between mesenteric fat quantity and sexual cycle : Grade 4 prevailed in winter, during the resting period of anchovy sexual cycle whereas in summer, and particularly in August, no specimen with this mesenteric fat grade was recorded and *vice versa*.

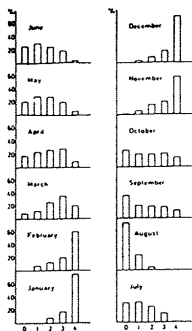


Fig. 1.- Monthly variations of anchovy mesenteric fat stages, 1975-1984.

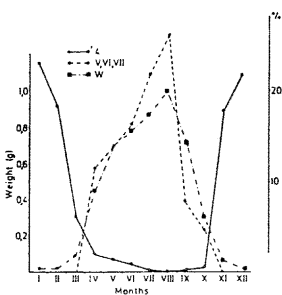


Fig. 2.- Monthly variations of anchovy gonad weight, most developed gonads (V, VI, VII) and stage 4 of mesenteric fat, 1975-1984.

**Conclusion**

Obtained results showed that mesenteric fat quantity varies during the year, as affected by the anchovy sexual cycle. Their variations are inversely related. The greatest quantities of fat reserves were recorded during resting period of anchovy sexual cycle in winter, and lowest quantities during anchovy maximum sexual activity in summer.

**REFERENCE**

SINOVCIC G., 1978. - On the ecology of anchovy, *Engraulis encrasicolus* (L.) in the central Adriatic. *Acta Adriat.*, 19 (2): 32 p.

