GROWTH OF COMMON SOLE *SOLEA VULGARIS* QUENSEL IN THE ADRIATIC SEA (OSTEICHTHYES, SOLEIDAE)

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ABSTRACT: - Parameters of the Von Bertalanffy growth equation for Adriatic Sole *(Solea vulgaris)* were estimated from otoliths reading: K 0.0410, L_∞ 38.25 (cm), t_0 -3.574 (months).
It is noteworthy that in the sagitta hyaline ring is laid down from june to october, period of intense growth.

RESUME': - *Croissance de la Sole* (Solea vulgaris) *en Adriatique.* Dans les otolithes (Sagitta) des Soles *(S. vulgaris)* pêchées en Adriatique on a observé la formation de l'anneau hyalin pendant l'été et de l'anneau opaque pendant la saison froide.
A' partir des lectures effectuées sur les otolithes de 635 Soles de une longueur totale comprise entre 11,5 et 35,5 cm, on a calculé les parametres de l'equation de Von Bertalanffy: K 0,0410, L_∞ 38,25 (cm), t_0 -3,574 (moins).

Knowledge of growth parameters is fundamental for any study on population dynamic. Unfortunately these data for many commercial species in the Adriatic sea are known in a rough way or are old and need to be confirmed. That is true also for the Common Sole *(S. vulgaris)*, the most important flat-fish in the Adriatic trawl fishery.
To fill partly that gap, otoliths (Sagitta) were collected from 671 Soles, ranging in size between 11.5 and 35.5 cm, obtained during different research programs on trawling grounds of the Central and Northern Adriatic sea in the years 1982-1984.
Fish total length was recorded to the half centimeter below, weight to the nearest gram.
Otoliths were mounted on black holding plates with "Eukitt", examined under reflected light with a stereomicroscope with micrometer eye-piece and measured along the mayor axis.
Number of opaque rings and presence of marginal hyaline ring were checked separately by both authors; results were compared and critical readings discarted.

As a rule otoliths had well marked rings, a total of 635 readings were retained for length-age computations.
It is noteworthy that in our material the seasonal appearance of opaque and hyaline rings shows a pattern opposite to that generally reported for fishes of temperate and cold waters.
A marginal hyaline ring was observed in all the otoliths obtained in june-october, period of intense growth; in november some otolith had already a narrow marginal opaque ring that became well evident in all otoliths obtained from december to april.
Apart from this anomaly, the seasonal pattern of rings formation and the good relationship between otolith length (l) and fish length (TL)

$$l\ (mm) = 0.4667 + 0.1287 \cdot TL\ (cm)\ ;\ r = 0.96;\ \ n = 592$$

makes reasonable the assumption that otolith growth and rings formation are related to fish body growth.
According to PICCINETTI & GIOVANARDI (1984) spawning of *S. vulgaris* in the Adriatic sea extends from November to March, therefore conventional birthday of the species was placed at the first of January.
Age was computed in months.
A BASIC version of the programm BCG3 (ABRAMSON 1971) was used to compute the parameters of the Von Bertalanffy growth equation:

$$L_\infty = 38.25\ (cm) \qquad K = 0.0410 \qquad t_0 = -3.574\ (months)$$

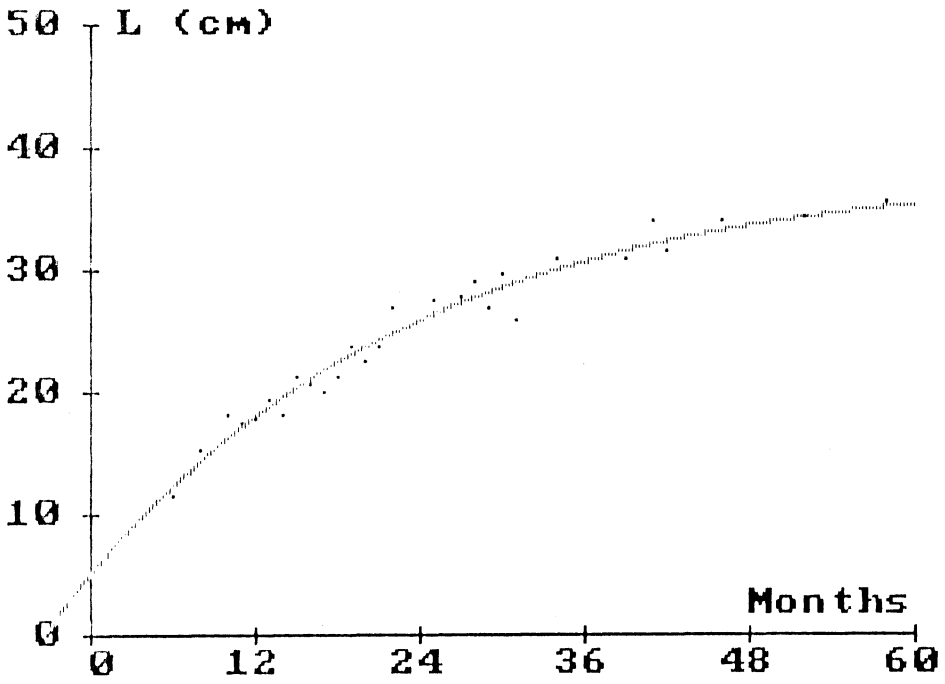

FIG.1 - Von Bertalanffy growth equation and experimental average length/age values for Common Sole *(Solea vulgaris)* in the Adriatic sea.

The Length-Weight relationship was computed as G.M. functional regression for the whole population sampled:

$$W = 0.004354 \cdot L^{3.236}$$

where W is weight in grams and L is total length in centimeters.
Our data are in good agreement with those obtained by MENDEZ DE ELGUEZABAL (1978) for the Golfe du Lion and by DENIEL (1981) for Bretagne (quoted in: SHEHATA, 1984).
For the Adriatic sea PICCINETTI & GIOVANARDI (1984) report values of K and L_∞ in agreement with our findings (unfortunately t_o is not given by these A.A.), on the contrary GHIRARDELLI (1959), from age determinations based on scales reading, reports for this species a much slower growth.

LITERATURE CITED

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