OBSERVATIONS ON GROWTH OF *MICROMESISTIUS POUTASSOU* (RISSO) (PISCES, GADIDAE) IN THE CENTRAL ADRIATIC SEA °

FROGLIA CARLO and GRAMITTO MARIA EMILIA

Istituto di Tecnologia della Pesca (C.N.R.) - Ancona, Italy

ABSTRACT - Growth of *M. poutassou* was studied from size frequencies distributions recorded during fisheries investigations in the Western Pomo pit (Central Adriatic sea).
The first two age classes could be followed with good detail, older individuals were not abundant in bottom trawl catches.
Growth rate obtained is higher than those reported in literature for Mediterranean and Atlantic areas.

RESUME - Les distributions de taille de *M. poutassou* recueillies au course des recherches sur la pêche dans l'Adriatique centrale ont été etudiées par la methode de HASSELBLAD. De cette façon la croissance dans les deux premières classes d'âge a pu être suivie avec un bon detail. La rareté de grand exemplaires n'a pas permis de suivre la croissance dans les classes plus âgées.
Les paramètres de l'equation de Von Bertalanffy sont aussi calculés.
De nos observations reviens que la croissance de *M. poutassou* en Adriatique est plus elevé par rapport aux autres regions méditerranéennes et atlantiques.

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Blue Whiting (*Micromesistius poutassou*) is a demersal fish quite common beyond the edge of continental shelf in the whole Western Mediterranean sea, Adriatic included.
This species, mainly represented by younger age-classes, was quite common in the cathces obtained during trawl fishery investigations in the Western Pomo Pit (Central Adriatic) in the period 1978-80.
Data on biology and growth of this species collected in that period are herein summarized.
All the individuals present in the catches were measured, at sea, to the lowest half centimeter to compute size frequency distributions.
Maximum size recorded is 39 cm Total Length, but less than 3% of the fishes in bottom trawl catches measured more than 30 cm. Only in August

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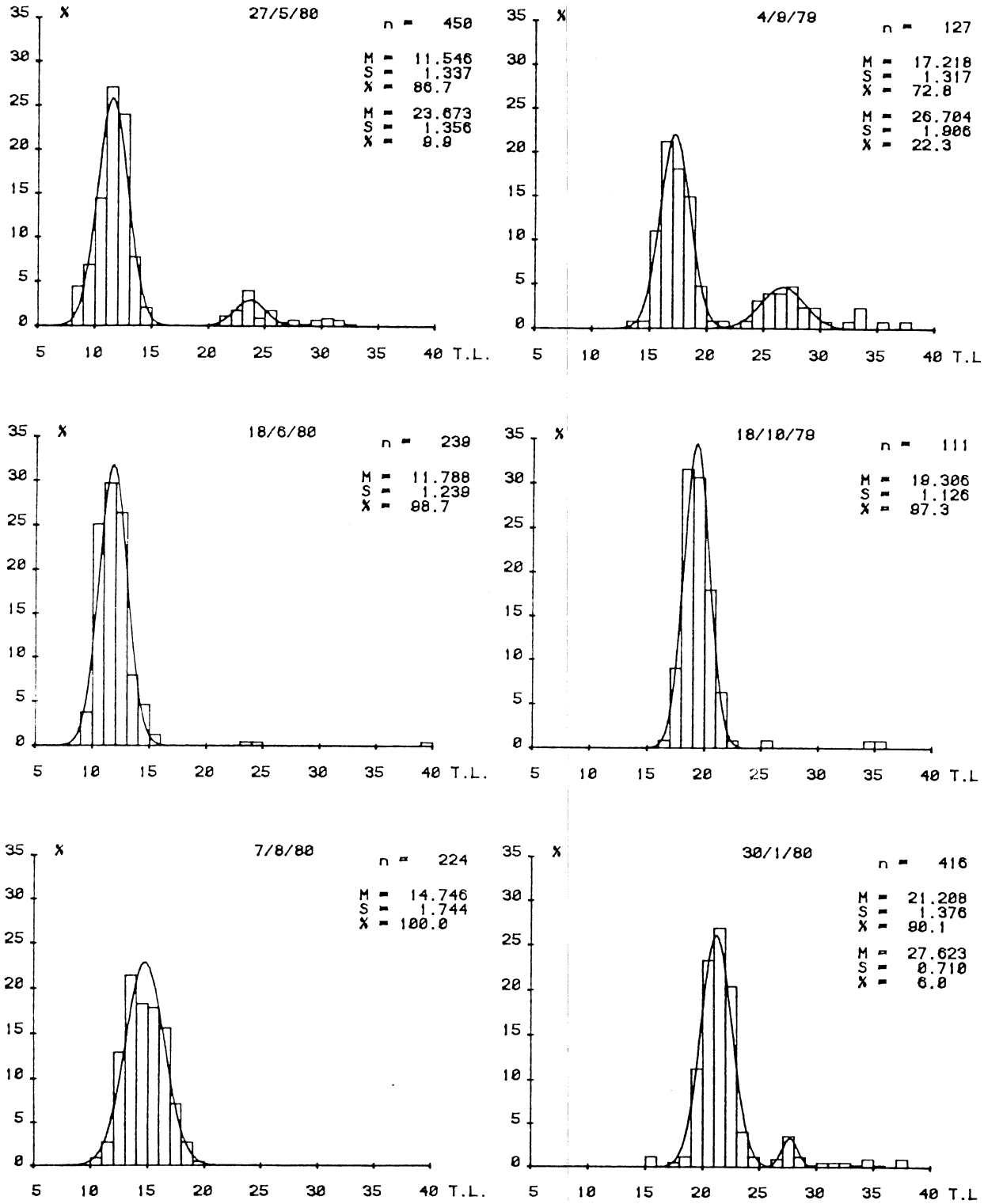

Fig. 1 - Length frequency distributions, with the curves of the gaussian components superimposed. The values of the three parameters of each component (calculated by the NORMSEP program) are also indicated.

1978, working with a pelagic trawl, we obtained a good catch where average size of individuals was 30.5 cm (range 24-38 cm).
The preliminary length-weight relationship computed, as GM functional regression, from two samples obtained in spring and summer, total 133 specimens ranging in size between 8 and 32 cm, is:

$$P = 0.005396\ L.T.^{3.070}$$

where P is weight in grams and L.T. is total length in cm.
Observations on sex-ratio and gonads maturity were not usually done, but it is noteworthy to report that in January all the females had ripe ovaries and the majority laid out eggs by sligth pressure on belly. Spawning in winter months was already reported for western italian seas (GUALINI, 1938; MATTA, 1959) and off spanish mediterranean coasts (BAS & MORALES, 1966). Analysis of the January sample let us estimate in 19 cm T.L. the average size at first spawning. This finding is in good agreement with other mediterranean data (MATTA, 1959; BAS, 1959).
From May sample it is evident that, in the Western Pomo Pit, Blue Whiting is recruited to fishery at a Total Length of about 10 cm, i.e. when it is less than half a year old; at this size fishes are discarded at sea and not landed to fish markets.
Size frequency distributions obtained in different months were analysed with the method proposed by HASSELBLAD (1966) by means of a desk calculator HP 9825A and a plotter (program NORMSEP; ABRAMSON, 1971)(Fig. 1). Assuming maximum hatching takes place in February, results (Fig. 2) that *M. poutassou* at the end of its first year of life, in January, has an average length of 21 cm. At this size it is sexually mature.
At the end of second year the size of *M. poutassou* is about 27 cm (Fig. 2). Specimens longer than this size were not sufficiently represented in the bottom trawl catches to make reliable estimates of age-length relationship for older fishes.

Tab. 1 - Parameters of the Von Bertalanffy equation, for ages expressed in months and in years.

t (age)	L_∞ (cm)	K	t_o
months	31.9	0.086	-1.296
years	31.9	1.032	-0.108

From the age-length key obtained, the parameters of the Von Bertalanffy growth equation were computed (program BCG 3; ABRAMSON, 1971) for mon-

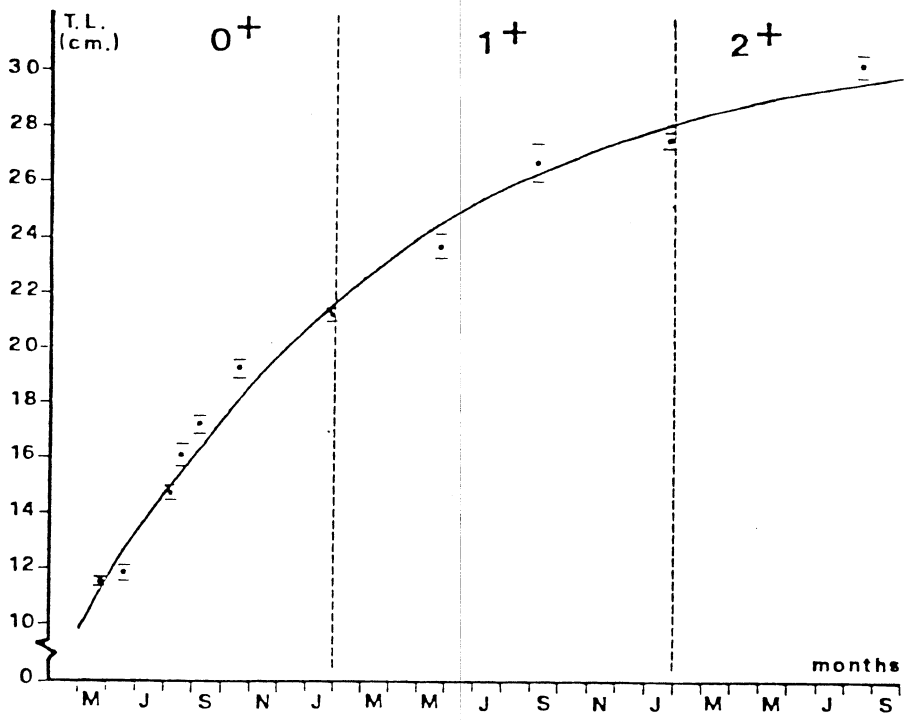

Fig. 2 - Theoretical Von Bertalanffy growth curve (continuous line) and observed mean lengths and confidence limits (p=0.95) of cohorts of different ages.

thly growth (Fig. 2) and transformed for annual growth (Tab. 1). When our data are compared with age-length keys reported in literature (BAS & MORALES, 1966; RAITT, 1968; ROBLES PARIENTE, 1970) a considerably higher growth rate in the adriatic adult Blue Whiting becomes evident.

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