LENGTH-WEIGHT RELATIONSHIP IN *PARASTROMATEUS NIGER* (BLOCH) (PISCES : PERCIFORMES)

ABSTRACT

Length and weight relationship of about 100 specimens measuring 19 to 96 mm was calculated for juvenile specimens of *Parastromateus niger* which constitute a good fishery along the inshore waters of Tuticorin. The linear equation was fitted for the juveniles and the regression equation was Log W : 1.5047+3.0420 Log L. The exponent value in juveniles of *P. niger* obeys the cube law relationship maintaining the shape without any change.

A STUDY of length-weight relationship in fishes is important to establish the mathematical relationship between the two variables, length and weight and to know the variations from the expected weight for various length groups (Le Cren, 1951). Weight of a fish is a function of its length and it is observed that the length-weight relationship could be expressed by the hypothetical cube law $W=CL^3$, where 'W' represents weight, 'L' the length and 'C' a constant. The formula could be used only if density and form are constant. A general parabolic equation of the form $W=aL^n$ (Which expresses the relation between two factors better than the cubic formula) where 'W' and 'L' represent weight and length of a fish respectively, 'a' a constant equivalent to 'c' and 'n' a constant to be determined empirically *i.e.* from the data.

In the present study an attempt has been made to study the length-weight relationship of juvenile specimens of *Parastromateus niger* which constitute a good fishery along the inshore waters of Tuticorin (08°04' N; 78°14' E) Coast from May to August. Except for the work of Basheerudin and Nayar (1962) for a brief account on the size frequency distribution and the description of juveniles by Pati (1977), information available on the study of length-weight relationship in juveniles is meagre.

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Materials and methods

For this study 100 specimens ranging in length from 19.0 to 96.0 mm were utilised. Total length was measured from tip of snout to vertical through the tip of longest caudal fin lobe in mm ; weight was recorded to the nearest 0.01 mg. Specimens where the tail are broken were rejected.

Results and discussion

The parabolic equation $W=aL^n$ can be expressed in the logarithmic form as Log W=log a ; n log L *i.e.*, Y=a+bx ; where a=log a ; b=n ; Y=10 gm and X=Log L which is a linear relation between Y and X. This linear equation was fitted for the juveniles of *P. niger* and the estimates of parameters of 'a' and 'b' for each category was obtained by the method of least squares. The regression equation for the juveniles is given below.

$$\text{Log } W=1.5047+3.0420 \text{ Log } L.$$

During fish growth, when it does not change form or density, the weight will be proportion to the cube of any linear dimension. According to Hile (1936) and Martin (1949) the value of the exponent 'n' in the parabolic equation

usually lies between 2.5 to 4.0. For an ideal fish which maintains the same shape without any change, the value of 'n' is equal to 3.0 (Allen, 1938). In the present study the exponent value was found to be 3.0420, thus *P. niger* in its juvenile stages obeys the cube law relationship maintaining the same shape without any change (Allen, 1938). In fishes 'b' value is usually '3' in the length-weight relationship, but during growth change in specific gravity of body contour, morphological changes due to age may also cause the coefficient of regression of logarithm on logarithm of length, to depart substantially from 3.0 (Rounsefell and Everhart, 1953). It is also interesting to note that allometrical growth is common in this species (Pati, 1977) and probably the study on adult specimens of *P. niger* may through more light on the deviation of the exponent value from 3.0.

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FIRST RECORD OF SPOTTED CHUB MACKEREL *SCOMBER AUSTRALASICUS* CUVIER (SCOMBRIDAE : PISCES) OFF VIZHINJAM, SOUTHWEST COAST OF INDIA

ABSTRACT

The occurrence of spotted chub mackerel *Scomber australasicus* Cuvier, 1831 off Vizhinjam, southwest coast of India is reported. This is the first record of the species from the Indian Coast. The diagnostic characters, description, distinguishing characters from the other closely related species and distribution of this species are briefly given.

ON JULY 24, 1993, a specimen of spotted chub mackerel *Scomber australasicus* Cuvier, 1831 which was described by Cuvier and Valenciennes (1831) was found in drift gill net (operated from motorised craft) catch off Vizhinjam (08°22'30" N 76°59'15" E) along with *Sarda orientalis*. The net was operated about 20 km off the coast at a depth of about 70 metres. The species is relatively rare in tropical waters and the present report is the first record from the Indian Coast. The fish specimen is deposited in the museum of the Vizhinjam Research Centre of Central Marine Fisheries Research Institute, Vizhinjam.