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LENGTH-WEIGHT RELATIONSHIP OF DREPANE PUNCTATA (CUV & VAL) AT JUVENILE STAGE OFF BOMBAY COAST.

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ABSTRACT

The study of the length weight relationship is highly useful to the fishery biologists in the study of population dynamics of fishes and for determining the pattern of growth of stock. The parabolic equation express the value of 'n' 2.83 indicates that the growth rate is lesser than the cube length.

INTRODUCTION

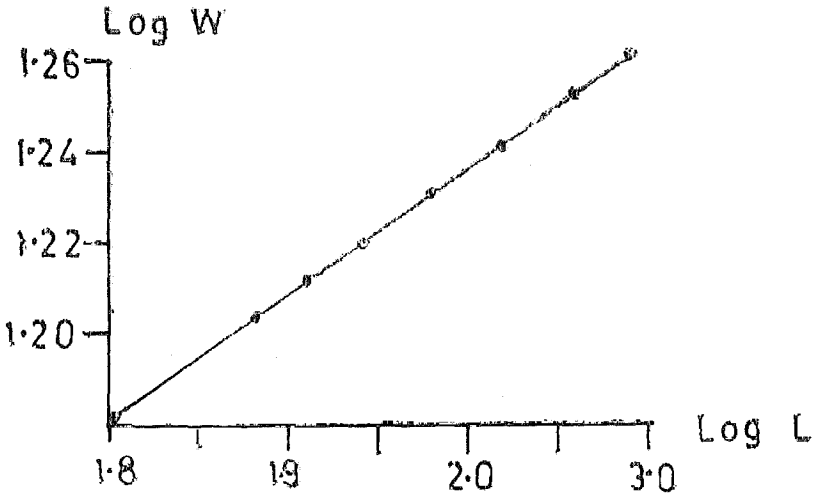
Le Cren (1951), has reviewed in detail the method employed in estimating the length weight relationship of fishes, with a clear exposition of the superiority of the equation of the general parabola $W = CL^n$, over that of the cube parabola $W = CL^3$. The formula $W = CL^n$ besides providing a means for calculating weight from length and direct way of converting logarithmic growth rates calculated of lengths into growth rates for weight, may also give indications of taxonomic differences and events in the life history, such as metamorphosis and onset of maturity (Le Cren, 1951). The present paper describes the length weight relationship of *D. punctata* commonly called Chandua, an important deep sea fish of the Bombay coast.

MATERIALS AND METHODS

Freshly caught fishes were collected from Versova, a fish landing centre in the city. Data for length weight were taken in fresh condition after removing the moisture from the body of the specimens by blotting papers. Standard length of fish upto the nearest millimeter and weights of the fish to the nearest milligram were used for this study. Specimens ranging from 60-130 mm in body length and 14-30 gm body weight, were grouped into 10 mm class interval and average weight and length were calculated. Log values were used for average length and weight and relationship was calculated by least square method.

RESULTS AND DISCUSSION

The data for length weight relationship of the fish and their log values are given in Tablet 1. The general length weight relationship thus calculated worked out to be $\log W = 4.715 + 2.83 \log L$. The logarithmic expression of the formula gives a straight line (Fig.)



Shrivastava and Singh (1962), reported value of 'n' as 2.0357 for *Cirrhina mriqala.* Raja (1967), recorded 35 values of regression coefficient for different groups which ranged from 2.0 - 5.4. Out of these 12 were found to depart significantly from the isometric growth value of '3' and the majority of the values were below 2.7. The most extreme values on the higher x side were declared significantly different from isometric growth. Beverton & Halt (1957), discussed the merit of allometric and cube formula and reported that the former worked much better for the fact that 'a' and 'n' of allometric formula vary within a wide range for very similar data and are very sensitive to even quite unimportant variation in 'n' whereas the cube law is generally obeyed by fishes living in unchanged ecological niches contrary to the present observation which does not obey this law. The length weight relationship may then be better expressed by a parabolic equation $W=aL^n$ where 'W' and L are weight and length respectively, 'a' and 'n' constants to be calculated empirically. However significant variations from the isometric growth n=3.0 are found to be rare, (Beverton and Holt, 1957) and for an ideal fish which maintains the shape throughout without any change, the value of n=3.0 (Allen, 1938). The value of n (2.83) indicates that the growth rate is lesser than the cube length.

Table-1 : The statistics of the length - weight relationship of *Drepane punctata*.

Size groups	Av. length	Observed Av. wt.	Calculated wt.	Calculated log	Log L	Log L^2	Log Lxw
61-70	66	6.0	1.4129	1.1499	1.819	1.1885	2.1609
71-80	78	9.5	1.7359	1.2395	1.892	1.2089	2.2680
81-90	88	15.0	2.0189	1.3034	1.940	1.2237	2.3668
91-100	97	18.0	2.2736	1.3567	1.986	1.2378	2.4448
101-110	105	24.0	2.5000	1.3979	2.021	1.2454	2.5048
111-120	115	32.0	2.7820	1.4597	2.06	1.2364	2.5750
121-130	126	43.0	3 0943	1.4906	2.100	1.2678	2.6460

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