

LENGTH-WEIGHT RELATIONSHIP AND RELATIVE CONDITION OF
LEIOGNATHUS BREVIROSTRIS (VALENCIENNES) FROM THE PALK BAY

ABSTRACT

The length-weight relationship of *Leiognathus brevirostris* which supports a commercial fishery in the Palk Bay at Mandapam is found to be logarithmic, expressed by the formula: $\text{Log } W = -4.8512 + 3.004 \text{ Log } L$ indicating an isometric growth pattern of the fish in its natural habitat. The mean relative condition of the species is 0.996 which denotes the normal well being of the fish in this region.

THE SILVERBELLY fishery of Mandapam region is constituted principally by two species, namely *Leiognathus jonesi* and *Leiognathus brevirostris*. The latter ranks second in respect of its production. The average annual landings of this species during 1985-1987 amounted to 8.54 tonnes forming more than 18% of the total catch of Silverbellies. Though a detailed study on the biology and fishery of *L. brevirostris* was reported by James and Badrudeen (1975), information on Length-weight relationship is not available. Hence a study was

undertaken to elucidate this relationship and the relative condition to add to the existing knowledge on the biology of the fish.

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The material for the present study was collected from the catch landed by trawlers operating in the Palk Bay off Mandapam. A total of 267 fishes ranging from 65 mm-138.0 mm in total length were used to study the length-weight relationship and relative condition of the fish. The total length of the fish measured from tip of the snout to the tip of the caudal lobe were grouped in 5 mm class interval. After removing the external moisture, each of the fish was weighed. The average weight was calculated for each class intervals. The length-weight relationship was calculated by employing Hile's (1936) Parabola: $W = CL^n$ where 'W' is the weight in grams, 'L' is the total length in mm and C and n are constants. The value of Log C and n are determined by fitting a line to the logarithms of L and W.

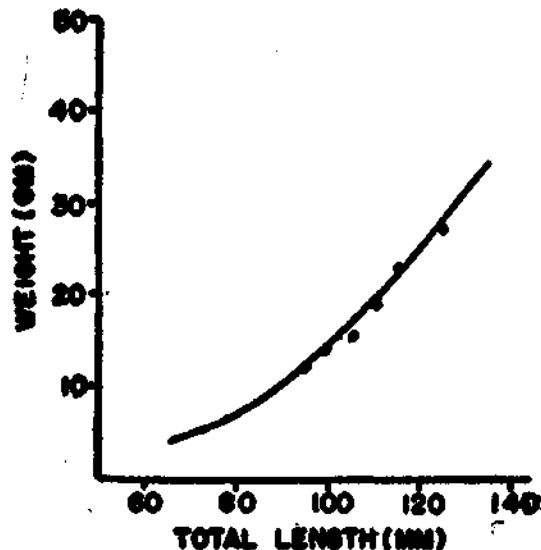


FIG. 1. Length-weight relationship of *L. brevirostris*.

The relative condition (Kn) was estimated by employing the formula W/w where 'W' is the empirical weight and 'w' is the calculated weight.

The length-weight relationship of *L. brevisrostris* is found to be $Lcg W = -4.8512 + 3.004 Lcg L$. The empirical and calculated weight of the fish at different sizes were given

The relative condition (K_n) of *L. brevisrostris* ranged between 0.96 and 1.11 with a mean value of 0.996. It shows that the condition of the fish is good in the ecosystem.

TABLE 1. Length-weight relationship and the relative condition factor (K_n) of *L. brevisrostris*

T.L. (mm)	No. of fish	Empirical Wt. (g)	Calculated Wt. (g)	Relative Condition (K_n)
65	5	4.40	3.93	1.11
70	9	4.88	4.91	0.99
75	19	5.86	6.04	0.97
80	30	7.08	7.33	0.96
85	39	8.93	8.80	1.01
90	27	10.38	10.45	0.99
95	45	12.13	12.29	0.98
100	24	14.35	14.34	1.00
105	19	15.84	16.60	0.95
110	21	19.28	19.09	1.00
115	10	23.20	21.81	1.06
120	6	25.33	24.79	1.02
125	3	27.66	28.04	0.98
130	8	30.50	31.54	0.96
135	2	34.50	35.33	0.97
Mean K_n				0.99

in Table 1 and Fig. 1. The length-weight relationship indicates closely the cubic law ($n = 3.004$) which describes the isometric growth of the fish.

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