

# Relative Condition Factor in *Nandus nandus* (Hamilton)

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The relative condition factor (Kn) was calculated for males and females of *Nandus nandus* (Hamilton). In males the relative condition factor is above 0.7 in all months and showed two peaks, in August and in October whereas in females it is more or less steady with three median peaks - May, July and September. The results show that there is positive correlation between relative condition factor and reproductive cycle of this fish.

The weight of a fish is said to vary with the cube of its length. Any deviation from this relationship has been reasoned as physiological changes in the fish and is termed as condition factor or ponderal index (Hilie, 1936; Thompson, 1943). Usually the density of the fish is maintained same as that of the surrounding water and hence changes in weight for length are due to changes in the form or volume and not specific gravity. Such changes are analysed using the condition factor or ponderal index  $K$ ,  $K = \frac{100 W}{L^3}$ , where  $W$  = weight

and  $L$  = length of the fish. From condition factor it is possible to define the seasonal changes in the condition of the fish in relation to the age and sex of the fish and the difference between the condition of the same species in different waters, which might also serve as an index of the productivity of the water mass. The above formula is based on the comparison with ideal fish where the cube relationship holds good.

Le Cren (1951) proposed a study on relative condition factor (Kn) in preference to ponderal index (K) as the latter is highly influenced by many environmental and biological factors. The difference between 'K' and 'Kn' is that the former measures the deviation from the hypothetical ideal fish while the latter measures the deviation

of an individual from the average weight for length. The present paper is the report on the relative condition factor (Kn) for the males and females of *Nandus nandus* (Hamilton).

## Materials and Methods

A total of 242 specimens (90 males and 152 females) of *Nandus nandus* in the size range 55 to 135 mm standard length which were collected using hand nets from Pamba river at Paippadu, Alleppy District, Kerala, South India (76° - 77°E Long. and 9° - 10°N Lat.) for one year from April 1983 to March 1984, were utilised in the study of the length-weight relationship. Data on the standard length was recorded in mm with an accuracy of  $\pm 0.5$  mm while the weight was noted in mg corrected to the nearest 0.01 mg for each specimen. A quantitative assessment of the condition of the gonad has been made employing the technique of gonado-somatic indices for different months.

Gonado-somatic index (G.S.I.) =  $\frac{\text{weight of the gonad} \times 100}{\text{weight of the fish}}$

The relative condition factor Kn was calculated using the formula,  $Kn = W/\bar{W}$ , where  $W$  = observed weight and  $\bar{W}$  = calculated weight of the fish.

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## Results and Discussion

The monthly mean values of the relative condition factor for males and females are plotted in Fig. 1, and variation in Gonado-Somatic index is given in Fig. 2 & 3.

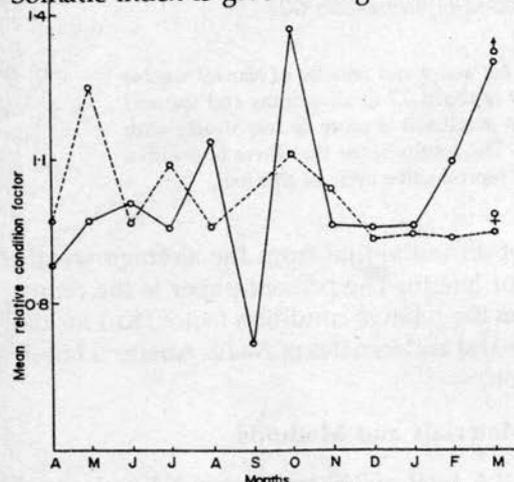


Fig. 1. Monthly mean value of relative condition factor for males and females

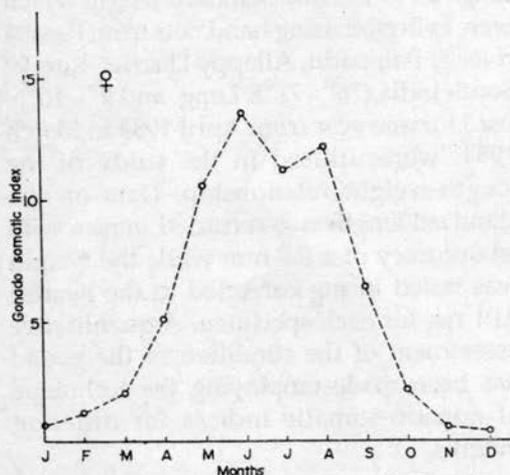


Fig. 2. Monthly variation in the Gonado Somatic Index of female *Nandus nandus*

The relative condition factor in males and females does not give similar seasonal variation. In males the relative condition factor is above 0.7 for all months. It shows two peaks in August and October. From April to August it shows a trend of gradual increase except for a slight decrease in July.

There is a sudden decrease in September followed by a sharp rise in October. In females however the relative condition factor after its first peak in May shows two median peaks, one in July and the other in September.

Several factors have been pointed out by various investigators as influencing the condition of fishes. According to Le Cren (1961), Morrow (1951), Qayyam & Qasim (1964 a,b) and Babu & Nair (1981) fluctuations in the gonad weight is the main factor which seems to regulate the condition factor. Another aspect which affects the condition factor is the feeding rate of the fish (Quasim, 1957; Bal & Jones, 1960; Bhatt, 1968). Bhatt (1970) observed that in *Heteropneustes fossilis* and *Mystus seenghala* the increase and decrease of 'K' value gave no indication of the spawning season of these fishes. He observed that the feeding rhythm was closely related to the condition factor than the cycle of gonad weight.

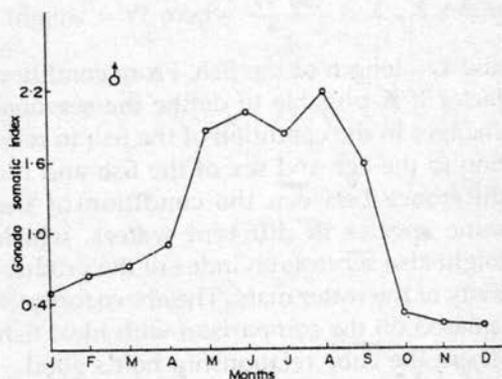


Fig. 3. Monthly variation in Gonado Somatic Index of male *Nandus nandus*

However the present observation in *Nandus nandus* reveals that there is a positive correlation between the relative condition factor and the reproductive cycle which is in agreement with the finding of Le Cren (1951), Qayyum & Qasim (1964 a,b)

and Babu & Nair (1983).

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