

Length-weight Relationship of the Pond Reared Tiger Prawn, *Penaeus monodon* Fabricius

T.V.A.Mercy, M.S.Syed Ismail Koya, K.Jayasree Vadhyar
and D.M.Thampy

College of Fisheries, Panangad, Cochin - 682506, India

The tiger prawn *Penaeus monodon* Fabricius is an important commercial prawn in the West Indo-Pacific region. Being a highly euryhaline species, they inhabit estuaries, inshore and deeper waters of the east and west coast of India. Tiger prawn is a fast growing variety reaching large size and is highly preferred for monoculture and polyculture operations. Eventhough the length-weight relationship

of *P. monodon* has been studied from the fishery (Subramanyan & Ganapati, 1975), such information from the culture systems is scanty. Knowledge of the length-weight relationship is of great practical utility in computing the weight from length alone and also in assessing the well being of the animals in culture ponds by comparing the values of relative condition factor.

P. monodon of different sizes were collected from the culture ponds located in the farm of the College of Fisheries, Panangad, south west coast of India. The total length, the maximum distance between the tip of the rostrum to the tip of telson was measured in mm and the weight in grams. The length-weight relationship can be presented by exponential formula.

$$W = a \cdot L^b$$

where 'a' and 'b' are constants. Logarithmic transformation of the data yields a liner equation

$$\log W = \log a + b \log L$$

The length of prawns varied from 64 to 186.9 mm and the weight ranged between 1 to 42.8 g. The regression equation for the analysed data ($n = 224$; $r = 0.9509$) (Fig.1) can be presented as

$$\log W = -4.6690 + 2.8025 \log L$$

Hall (1962) has determined carapace length-weight relationship of *P. monodon* and obtained a regression coefficient of

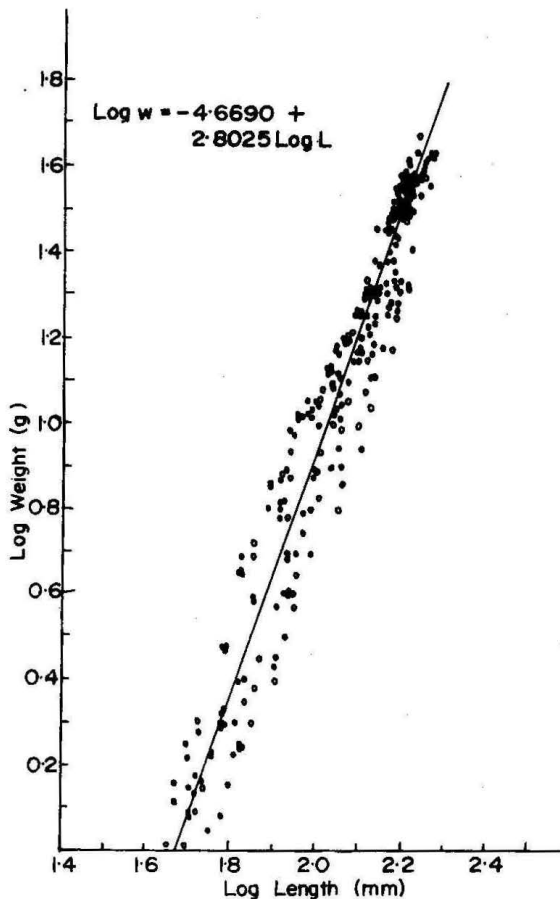


Fig. 1. Length-weight relationship of *P. monodon*

2.640. The slope of the total length-weight relationship of tiger prawn from the Godavari estuarine system was found to be 3.1201 (Subramanyan & Ganapati, 1975). In the present study the 'b' value was observed as 2.8025. Student's t value calculated to test the deviation from the cubic value shows that the regression coefficient is significantly different from 3 ($p < 0.01$). In other words, prawns grow more slender as the length increases ($b < 3$). The determined regression equation can be efficiently used for computing the weight from length alone. Further, it can be used for calculation of relative condition factor ($K_n = w/\bar{w}$) which is the ratio of the observed weight (w) to the expected weight ($\bar{w}$) obtained from length-weight regression. K_n is a use-

ful index for comparing the well-being of prawns in culture ponds and in making requisite changes in the management practices (Le Cren, 1951).

The authors are thankful to Dr. M.J. Sebastian, Dean, College of Fisheries, for the encouragement. They are also grateful to Shri T.M. Sankaran, Associate Professor, for the help in the preparation of the paper.

References

- Hall, D.N.F. (1962) *Fish. Publs. Colon. Off.* 17, 1
- Le Cren, E.D. (1951) *J. Anim. Ecol.* 20, 201
- Subramanyan, M. & Ganapati, P.N. (1975) *Bull. Dept. Mar. Sci., Univ. Cochin*, 7, 653