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## Length Weight Study of Two Species of Crabs *Matuta planipes* and *Matuta lunaris* from Karachi, Pakistan

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**Abstract :** The paper presents the length weight relationship parameters for two species crabs belonging to Family Calappidae, obtained by fishing nets from Clifton area, Karachi. Both the species of *Matuta* showed negative allometric growth of weight. *M.lunaris* is known as a serious predator of flounder fishes. The population study of these crabs should be done in future as these were found associated with guitar fish *Rhinobates halavi* and sole fishes.

**Key words:** *Matuta planipes*, *Matuta lunaris*, length weight relationship

### Introduction

Two species of crabs, *Matuta lunaris* (Forsskal) and *Matuta planipes* (Fabricius) are abundantly found in subtidal waters of Karachi Coast. These crabs are edible, commercially important and also known as predators of the flounder fishes. Length and weight are two important components in the biology of species at both individual and population levels. Information on length weight relationship is required for various purpose including estimation of biomass from commercial processing data. This is the first study to report these parameters for the length weight relationship of *Matuta lunaris* and *M. planipes* occurring in neritic, benthic zone south of Karachi.

### Materials and Methods

Crabs were obtained from Clifton beach. They were procured from fishermen's catch captured with demersal fishes. Crabs were brought to the laboratory and kept in aerated seawater. Species were identified according to Bianchi (1985), then sorted according to sex. Carapace length (L) was measured using a vernier caliper and total weight (W) was determined using an electronic balance after each crab was dried on filter paper. The parameters a (intercept) and b (slope) were calculated using the least squares regression after log transformation of the equation:

$$W = a.L^b$$

### Results and Discussion

The length weight relationship parameters (a and b) for *Matuta planipes* and *M. lunaris* are presented in Table 1.

Table 1: Length-wight relationship of two species of crabs, *Matuta planipes* and *M. lunaris* at Karachi. N, Number of individuals; L, carapace length; a, intercept; b, coefficient of regression; R<sup>2</sup>, correlation coefficient

Name of species	N	L(cm)	a	b	R <sup>2</sup>
<i>Matuta planipes</i> Male	61	1.56-2.93	0.615	2.397	0.642
<i>Matuta planipes</i> Female	45	2.00-3.23	0.520	2.724	0.556
<i>Matuta lunaris</i> Male	31	1.42-3.12	0.538	2.711	0.914
<i>Matuta lunaris</i> Female	27	2.23-3.22	3.747	0.988	0.411

It shows correlation coefficients (r) for the log transformed lengthweight data pairs, the number of individuals and the carapace-length ranges of the two species of *Matuta* crabs. The results revealed that both the species showed negative allometric growth. Analysis of covariance of carapace length-weight data in the *M. lunaris* suggested that between the regression lines of males and females a significant difference was observed (Fig. 1). The slope in regression lines of *M. planipes* males and females also showed difference but it was comparably lesser than the difference observed in *M. lunaris*. The result also showed that sex ratio was biased towards males, while size range and maximum size of females was greater than males. Female *M. lunaris* having carapace length smaller than 3.0 cm were heavier than males whereas, *M. planipes* females having carapace length greater than 2.0 cm are heavier than males. Sukumaran and Neelakantan (1997) working on length weight relationship of portunid crabs of Karnataka coast, India reported heavier males in any given length of *Portunus sanguinolentus* and *P. pelagicus*.

In present study *Matuta planipes* and *M.lunaris* were found in association with flounder fishes and guitar fish, *Rhinobatos halavi*. According to Hossain and Tanaka (2002) *Matuta lunaris* is known as a predator causing

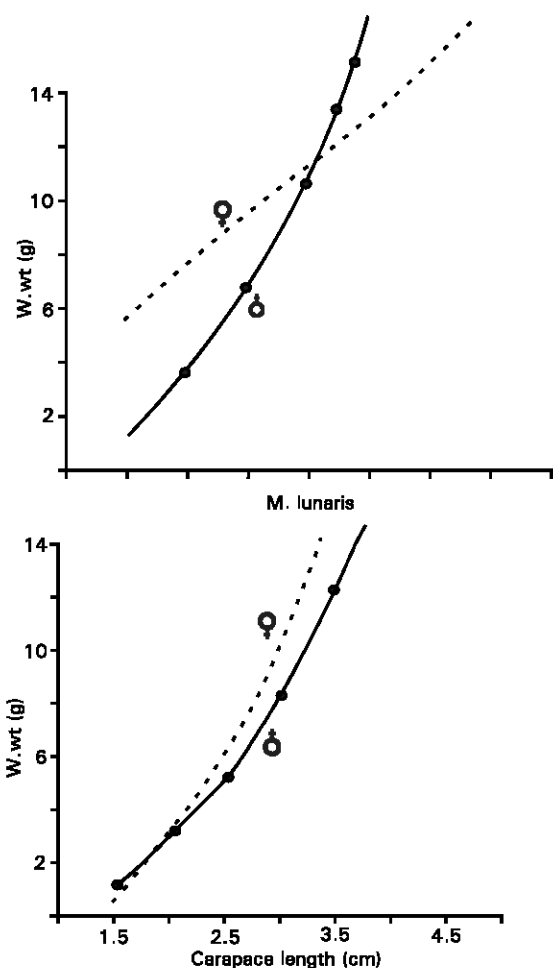


Fig. 1: Length weight relationship of two species of crabs *Matuta lunaris* and *Matuta planipes*. (W.wt, wet weight)

serious damages to fishery based on Japanese flounder *Paralichthys olivaceus*. They suggested that stock of Japanese flounder can be improved by applying proper feeding protocol and conditioning to avoid predators prior to release.

Further studies on population structure and influence of these crabs on Pakistani fishery are suggested.

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