Journal of Animal and Veterinary Advances 10 (8): 1061-1062, 2011
ISSN: 1680-5593

Length-Weight Relationships of *Eriphia verrucosa* Forskal (1775) from the Aegean Sea (Linnaeus, 1758)

Ali Ulas and Celalettin Aydin
Faculty of Fisheries, Ege University, 35100 Bornova, Izmir, Turkey

Abstract: The study was aimed to determine length-weight relationship of *Eriphia verrucosa* (Forskal, 1775) as a basis for conversions. The study was carried out in Izmir Bay, the middle of Aegean sea between October 2008 and January 2009. The experiments were collected by skin divers between. All sampled individuals were sorted according to sex by checking the abdominal flap. The length-weight relationship between Weight (W) and Carapace Length (CL) were found as $W = 15.02 \times CL^{0.3228}$ for female, $W = 8.86 \times CL^{0.4073}$ for male $W = 8.72 \times CL^{0.4074}$ for combined sexes. Females were generally smaller than males (K-S test; $p<0.05$). Comparison of length-weight regression lines with sexes revealed that there was a statistically significant difference (F test = 0.01, $p<0.05$).

Key words: *Eriphia verrucosa*, length-weight relationships, aegean sea, skin divers, abdominal flap

INTRODUCTION

Eriphia verrucosa is typically brownish green or brownish red in colour with yellow spots. It has very strong, asymmetric chelipeds, the larger ones typically bearing rounded tubercles in front of the upper articulation of the carpus.

The smaller one has many sharper tubercles arranged in lines. It is a very prolific species and in springtime will migrate to much shallower waters, usually <1 m deep with reproduction occurring in May to June. Its larvae are planktonic and go through 4 stages of metamorphosis from zoe to megalope. *E. verrucosa* occupies infralittoral crevices at shadow zones with a well-developed algal coverage (Flores and Paula, 2001). It is found throughout the Mediterranean as well as in the eastern Atlantic from Brittany to Mauritania and the Azores.

The first records of *Eriphia verrucosa* in the Turkish territorial waters of the Aegean sea in the Izmir region was by Forskal (1775). At that time many researcher reported the occurring the species from different Turkish seas region (Demir, 1952; Muller, 1986; Kocatas and Katagan, 1993, 2003; Balkis, 1994; Balkis *et al*., 2001; Ozcan *et al*., 2005; Celik *et al*., 2007).

Nevertheless, very little is known about the biological characteristics of *Eriphia verrucosa* along the Turkish coast of the A egean sea so, the objective of this study was to provide the length-weight relationships in *E. verrucosa* as a basis for biological data. For this reason, morphometric relationships of the species including carapace length and weight were investigated.

MATERIALS AND METHODS

The study was carried out in Izmir, the middle of Aegean sea between October 2008 and January 2009. The experiments were collected by skin divers from 14 skin diving. All sampled individuals were sorted according to sex by checking the abdominal flap. A male crab has a small triangular flap while a female crab has a broad oval-shaped abdominal flap.

To determine the relationships between length-weight relationships, a total of 129 specimens were measured. Body width (BW) was measured as the maximum width of the carapace to the nearest 0.1 mm using digital callipers. Weight (W) was taken using a digital balance with a precision of 0.01 g.

Kolmogorov-Smirnov (K-S) tests were used to compare the differences between length distributions of individuals for sexes. The relationships BW-CL was determined by using the regression analysis tool of Statgraphics Centurion.

The Length-Weight Relationships (LWR) were calculated using the formula $W = a \times L^b$ for females, males and combined sexes by the least squares regression after log transformation of both W and TL/CL/BW and the association degree between the variables was calculated by the determination coefficient (r^2). calculated by the determination coefficient (r^2) The F-test revealed the existence of significant differences between the lines for length-length and length-weight relationships with sexes.

Corresponding Author: Celalettin Aydin, Faculty of Fisheries, Ege University, 35100 Bornova, Izmir, Turkey

RESULTS AND DISCUSSION

During the study, 129 *E. verrucosa* were measured and descriptive statistic values for males, females and combined sexes are presented separately in Table 1. Size-frequency distributions show a size-predominance of males over females with mean male size exceeding that of females and the K-S test indicated that existence of significant differences between carapace length of male and female ($p<0.05$). Regression line and equations of length-weight relationships for female, male and combined *Eriphia verrucosa* sexes and the association degrees between variables (determination coefficient r^2) are shown in Fig. 1. The varying CL-W relationships in *E. verrucosa* according to males and combined same, female sexes require different equations for converts. Comparison of length-weight regression lines with sexes revealed that there was a statistically significant difference (F test = 0.01, $p<0.05$).

Table 1: Descriptive statistics values for various measurements of *Eriphia verrucosa* (Forskal, 1775)

	Carapace length (mm)			Weight (g)		
Parameters	Female	Male	Combine	Female	Male	Combine
Minimum	5.7	5.7	5.7	82.5	74.6	74.6
Maximum	8.6	9.4	9.4	263.0	391.0	391.0
Mean	6.8	8.2	7.8	143.4	255.2	221.4
Standart hata	0.1	0.1	0.1	7.2	7.1	7.0
Number	39.0	90.0	129.0	39.0	90.0	129.0

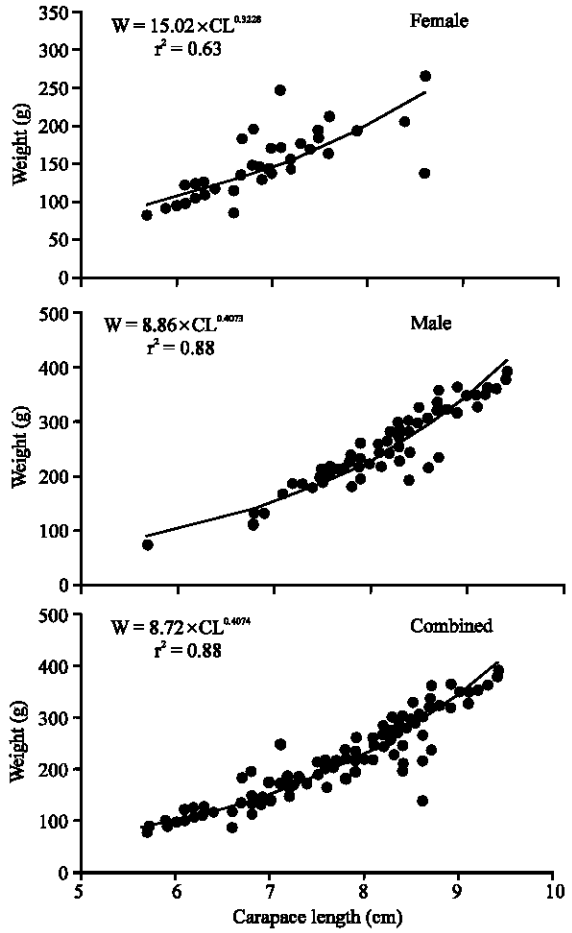

Fig. 1: Regression lines and length-weight relationships for females, males and combined sexes of *Eriphia verrucosa* (Forskal, 1775) and the association degrees between variables (r^2: determination coefficient; CL: Carapace Length; W: Weight)

CONCLUSION

As a result with the aid of the length-weight relationships presented here, we enable fisheries scientists or biologists to derive the length-weight estimates for *E. verrucosa* based on a single measured value.

REFERENCES

Balkis, H., 1994. A study on taxonomy and ecology of crabs found in the Sea of Marmara. Ph.D. Thesis, Istanbul Universitesi, Vezneciler, Istanbul.

Balkis, H., N. Balkis and S. Altinsacli, 2001. The crab species found on the Coasts of Gokceada (Imroz) Island in the Aegena sea. Hydrobiologia, 449: 99-103.

Celik, E.S., A.S. Ates and M. Akbulut, 2007. A Survey on the Brachyura (Crustace, Decapoda) in the Dardanelles. Turk. J. Zool., 31: 181-183.

Demir, M., 1952. Benthic invertebrate animals from the coasts of the Bosphorus and the Islands. Istanbul Univ. Hydrobiol. Inst. Publ., 3: 1-615.

Flores, A.A.V. and J. Paula, 2001. Intertidal distribution and species composition of brachyuran crabs at two rocky shores in central Portugal. Hydrobiologia, 449: 171-177.

Kocatas, A. and T. Katagan, 1993. Decapod Crustacean Fauna of the Sea of Marmara. Int. Senck. Symp. Crustacea Decapoda Frankfurt, pp: 18-22.

Kocatas, A. and T. Katagan, 2003. Decapod crustacean fauna of the Turkish seas. Zool. Middle East, 29: 63-74.

Muller, G.J., 1986. Review of the hitherto recorded species of crustacea decapoda from the bosphorus, the sea of marmara and the dardanelles. Cercetari Marine IRCM., 19: 109-130.

Ozcan, T., T. Katagan and A. Kocatas, 2005. Brachyuran crabs from Iskenderun Bay (Southeastern Turkey). Crustaceana, 78: 237-243.