

LENGTH-WEIGHT RELATIONSHIP OF *APHANIUS FASCIATUS* (VALENCIENNES, 1821) FROM HOMA LAGOON (AEGEAN SEA)

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Abstract

A total of 224 *A. fasciatus* individuals with 151 females and 73 males were collected by beach seine from Homa Lagoon (Aegean sea coast of Turkey) in October-November 2013. Minimum and maximum total length with a mean total length of females were 2.4, 5.3 cm and 3.8 ± 0.616 cm, respectively. For males minimum and maximum total length with a mean total length were 2.9, 4.8 cm and 3.8 ± 0.376 cm. Length-weight relationships were determined as $W = 0.0103L^{3.267}$, $W = 0.0098L^{3.281}$ and $W = 0.0098L^{3.279}$ for males, females and combined sex, respectively.

Keywords: *Fishes, Lagoons, Teleostei, Aegean Sea*

Data of length and weight is useful and standard consequences in a variety of studies including estimation of growth rates, age structure and other related parameters applied in fish population dynamics. Moreover, length-weight relationships are widely used in fisheries biology in order to compare life processes and morphology of fish populations which inhabit in a variety of geographies.[1] The aim of the study is to determine the length-weight relationships for female and male individuals and combined individuals of *Aphanius fasciatus* species from Homa Lagoon in 2013.

The study area covers Turkish Aegean sea waters off Homa Lagoon in Izmir Bay. A total of 224 fish specimens (151 females and 73 males) were collected between October and November in 2013 using a beach seine. The length of wings in the beach seine is 10 m each and the bag is 2.5m and its 1m. The net used in both bag and wings is made of tulle curtain fabric with a mesh opening of 1mm. The samples were carried to the research lab in plastic bags to measure their length and weight. The total lengths were measured to the nearest 0.1cm and body weight to the nearest 0.01g by means of a balance. The length-weight relationships for weight were calculated using the equation, $W=aL^b$ [2] where a is a coefficient related to body form and b is an exponent indicating isometric growth when equal to 3. The statistical significance level of r^2 was estimated by linear regressions on the transformed equation, $\text{Log}W=\text{log}a+b.\text{log}TL$.

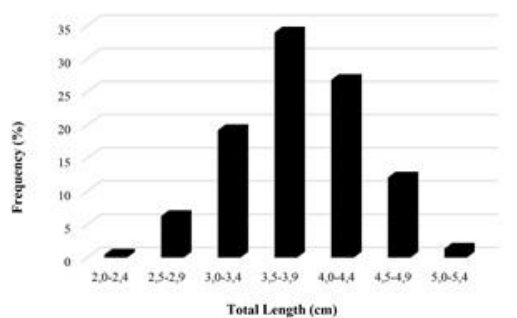


Fig. 1. Distribution of length-frequency of specimens of *A.fasciatus* in combined sex.

The present study considered the total length a parameters. The recorded minimum and maximum lengths were 2.4 and 5.3 cm in females and 2.9 and 4.8 cm in males, respectively. On the other hand, the minimum and maximum weights were 0.17 g and 2.30 g in females and 0.34 g and 1.77 g in males, respectively. Figure 1. shows length- frequency distribution of *A. fasciatus* in combined sex. All individuals in the total length frequency distributions 3,5 – 3,9 cm in length range of 33.9 % has been found that in the first place. Length-weight relationships (LWRs) for males, females and the total sample population were determined as $W = 0.0103L^{3.267}$, $W = 0.0098L^{3.281}$ and $0.0098L^{3.279}$ respectively. LWRs of *Aphanius fasciatus* presented in Figure 2 shows that the calculated allometric coefficients female, male and combined were 3.281, 3.267 and 3.279 respectively. It was observed that the values of 'b' were higher in females than those of males.

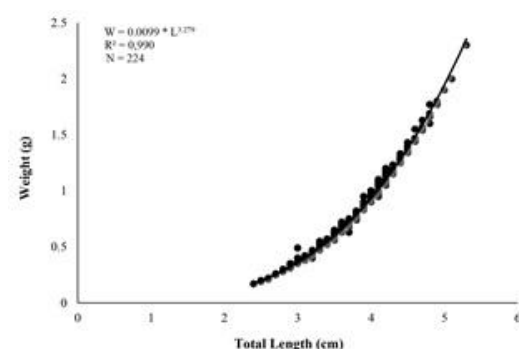


Fig. 2. Length-weight relationship of *A. fasciatus* samples collected from Homa Lagoon.

The LWR can be obtained from the length and weight measurements of the same fishes throughout their lives or from a sample of fish taken at a given time [3]. The parameters of the fish, LWRs are affected by a series of factors including season, habitat, gonad maturity, sex, diet, stomach fullness, health and preservation techniques [4,5]. All allometric coefficients (b) estimated in this study were within the expected range 2.3-3.5, and according, allometric coefficients (b) may range from 2 to 4. The result of the present study indicate that the value of b is more than 3. The values of b found in studies conducted on *A. fasciatus* in Homa Lagoon indicate positive allometry of growth.

References

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