

Length-Weight Relationship of Fishes Caught by Trawl off Alexandria, Egypt

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Abstract

This paper presents the length-weight relationship parameters (a and b) for 29 fish species, belonging to 16 families, taken by otter trawl fishing from Egyptian Mediterranean waters. The b values obtained ranged from 2.50 to 3.44 (with a mean of 2.926).

Introduction

The length-weight relationship parameters (a and b) of economically important fish species from Egyptian Mediterranean waters off Alexandria were reported by Faltas (1993) who dealt with lizard fishes and Abdallah and El-Hawet (2000) who dealt with sardines. This is the first study to report these parameters for the mix of fishes (including discards and landings) taken by trawl fishing in

Egyptian Mediterranean waters. These parameters are important in stock assessment studies.

Materials and Methods

Eighteen cruises were conducted in the study area (Fig.1) using a commercial bottom trawler during the period January to December 1998. Fishing was carried out at depths of 30 - 200 m between 29° 30' E and 30° 22' E. The catch from a total of 162 fishing hours was

analyzed. Fishes were identified according to Whitehead et al. (1984). Length-weight relationships were calculated using the least-squares regression on log-transformation of the equation:

$$W = a \cdot L^b \quad \dots 1$$

where W is the total weight (in g) and L is the total length (in cm). The systematic bias of the logarithmic transformation was corrected according to Sprugel (1983).

Results

The Egyptian local names, the parameters (a and b) of length-weight relationships, the correlation coefficients (r^2) for the log-transformed L-W data pairs, the number of individuals (N) and the length ranges of sampled fish species are summarized in Table 1. The parameter b of the fishes studied ranged from a minimum of 2.50 to a maximum of 3.44 with a mean value of 2.926 ± 0.088 at 95% confidence level. According to Pauly and Gayanilo (1997), b values may range from 2.5 to 3.5.



Fig. 1. Study area in the Egyptian Mediterranean waters.

Table I. Length-weight relationships of fishes caught by bottom trawl fishing from the Egyptian Mediterranean waters, off Alexandria.

Family/Species	Local name (Arabic)	N	Length range (TL, cm)	a	b	r ²
Balistidae <i>Stephanolepis hispidus</i>	Khanzir beshouka	195	3.3 - 22.6	0.015	3.15	0.974
Bothidae <i>Bothus podas</i>	Mousa	310	5.5 - 13.6	0.007	3.20	0.972
Callionymidae <i>Callionymus maculatus</i>	Raad	37	4.5 - 17.0	0.027	2.67	0.980
Carangidae <i>Trachurus trachurus</i> <i>Trachinotus ovatus</i>	Shakhoura Ghalanfiesh	38 45	7.4 - 21.5 3.4 - 23.3	0.017 0.022	2.80 2.73	0.874 0.975
Citharidae <i>Citharus linguatula</i>	Mousa	60	6.8 - 14.2	0.008	3.04	0.986
Engraulidae <i>Engraulis encrasicolus</i>	Anshuga	156	4.8 - 10.9	0.008	2.86	0.931
Gobiidae <i>Gobius niger</i>	Abu-kirsh	141	6.0 - 13.3	0.016	2.89	0.918
Mullidae <i>Mullus barbatus</i> <i>Mullus surmuletus</i> <i>Upeneus asymmetricus</i>	Barbouni Barbouni Hagar Barbouni	512 122 70	3.6 - 15.7 5.4 - 20.8 7.5 - 13.1	0.012 0.011 0.039	3.00 3.03 2.50	0.921 0.731 0.944
Serranidae <i>Serranus cabrilla</i> <i>Serranus hepatus</i> <i>Serranus scriba</i>	Korfossa Sheikh Sheikh	208 153 160	3.2 - 19.5 3.1 - 12.5 6.5 - 20.2	0.039 0.025 0.014	2.55 2.84 2.94	0.983 0.948 0.980
Siganidae <i>Siganus luridus</i> <i>Siganus rivulatus</i>	Batatah Batatah	144 112	3.8 - 17.0 5.5 - 27.6	0.011 0.022	3.04 2.82	0.823 0.873
Soleidae <i>Microchirus ocellatus</i>	Mousa	40	9.3 - 16.6	0.018	2.90	0.963
Sparidae <i>Boops boops</i> <i>Pagellus erythrinus</i> <i>Lithognathus mormyrus</i> <i>Sarpa salpa</i>	Mouza Ghozailla Meramar Sarab	284 903 197 39	3.7 - 14.6 2.8 - 19.4 3.6 - 16.0 8.9 - 13.0	0.007 0.016 0.010 0.014	3.13 2.95 3.04 2.90	0.979 0.988 0.987 0.958
Synodontidae <i>Saurida undosquamis</i> <i>Synodus synodus</i> <i>Synodus saurus</i>	Makarouna Makarouna Makarouna	465 60 27	5.0 - 31.0 16.7 - 23.6 12.8 - 25.2	0.003 0.002 0.003	3.30 3.44 3.32	0.953 0.975 0.897
Trachinidae <i>Trachinus draco</i>	Ballamah	170	10.0 - 23.0	0.014	2.80	0.918
Triglidae <i>Chelidonichthys lucerna</i> <i>Chelidonichthys lastoviza</i> <i>Trigla lyra</i>	Ferakh Ferakh Ferakh	196 220 160	4.7 - 24.9 5.2 - 14.4 9.5 - 20.2	0.029 0.023 0.034	2.63 2.79 2.57	0.947 0.969 0.969
Uranoscopidae <i>Uranoscopus scaber</i>	Kott	45	7.0 - 23.4	0.017	3.03	0.965

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