

ORIGINAL ARTICLE

Length-Weight Relationships for Eight Species of By-Catch and Discard Fishes in the Fishing Grounds of Khuzestan Coastal Waters (Northwest Persian Gulf)

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ABSTRACT

Length-weight relationships were estimated for eight fish species: *Johnius borneensis*, *Johnius belangeri*, *Pomadasys stridens*, *Upeneus sulphureus*, *Saurida tumbil*, *Ilisha megaloptera*, *Photopectoralis bindus*, *Thryssa hamiltonii* from the coastal waters of Khuzestan in the northwest Persian Gulf.

Keywords; Length-weight relationships, The fishing grounds, Coastal waters.

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INTRODUCTION

Length-weight relationships are used to assess weight from length or the conversion of growth-in-length equations to growth-in-weight [1]. Herein, the length-weight relationships are provided for eight species from Khuzestan coastal waters (in the northwest Persian Gulf), including *Johnius borneensis* (Bleeker, 1851), *Johnius belangeri* (Cuvier, 1830), *Pomadasys stridens* (Forsskal, 1775), *Upeneus sulphureus* (Cuvier, 1829), *Saurida tumbil* (Bloch, 1795), *Ilisha megaloptera* (Swainson, 1839); *Photopectoralis bindus* (Valenciennes, 1835), *Thryssa hamiltonii* (Gray, 1835). There is little biological information for these species and the length-weight relationships are reported here for the first time.

MATERIALS AND METHODS

The study area was restricted to Iranian waters of the northwest Persian Gulf. Data were collected by research surveys on a weekly basis, October 2013 to September 2014 in the Chavibdeh, Hendijan and Arvandkenar fishing grounds. The specimens were captured with bottom trawl nets. Trawls were restricted to depths up to 30 m. The specimens were recognized according to Fischer and Bianchi [2], Carpenter et al. [3] and Nelson [4]. For each specimen, the total length (TL) was measured with a digital caliper to the nearest 0.1 mm, and body weight was measured on a digital scale to 0.1 g. The length-weight relationship parameters were estimated by linear regression using the log-transformed values: $\log W = \log a + b \log L$ [5].

RESULTS

Totals of 2719 specimens of selected fish species were collected. Results of the L-WR regressions are shown in Table 1.

Table 1. Length–weight relationship parameters for eight fish species from Khuzestan coastal waters (northwest Persian Gulf)

Species	N	TL Range (cm)	W Range (g)	a	b	95% CI Of b	r ²
<i>Johnius borneensis</i>	100	9.0-18.0	7.00-77.00	0.00652	3.23	2.93-3.53	0.96
<i>Johnius belangeri</i>	100	8.7-18.5	7.00-72.00	0.00560	3.25	2.88-3.62	0.96
<i>Pomadasystris stridens</i>	218	7.5-24.0	14.0-173.0	0.0372	2.62	2.01-3.75	0.78
<i>Upeneus sulphureus</i>	401	4.50-19.70	4.0-95.50	0.0127	2.99	2.91-3.08	0.94
<i>Saurida tumbil</i>	420	8.70-30.50	4.0-232.0	0.00324	3.25	3.09-3.41	0.97
<i>Ilisha megaloptera</i>	395	6.50-35.0	3.0-278.0	0.0132	2.76	2.61-2.91	0.94
<i>Photopectoralis bindus</i>	547	1.10-12.50	2.0-31.0	0.0691	2.28	2.25-2.31	0.80
<i>Thryssa hamiltonii</i>	538	6.0-33.70	2.0-228.0	0.00832	2.91	2.85-2.97	0.97

TL, Total length; W, weight; N, number of specimens; a, intercept; b, regression slope; r², coefficient of determination

DISCUSSION

The present results were comparable with other studies, only one LWR was previously reported in the scientific literature for *Ilisha megaloptera* [6]. Daliri et al. [6] reported that the value of parameter b is 2.83 for *Ilisha megaloptera*, which is congruent with our results. In the present study the exponent b was between 2.28 for *Photopectoralis bindus* to 3.25 for *Johnius belangeri* and *Saurida tumbil*. According to Tesch [7], the value of parameter b varies between 2 and 4. In the present study, the values of b remained within the expected range for all species. The length-weight relationships in fishes can be affected by a number of factors including season, habitat, gonad maturity, sex, diet, health and preservation techniques of the captured specimens [7, 8], which were not accounted for in the present study.

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