Length-Weight Relationship of Five Serranids from Palawan Island, Philippines

B.J. Gonzales, H.P. Palla and H. Mishina

Abstract

The parameters **a** and **b** of the length-weight relationship (LWR) of the form $\mathbf{W=aL^b}$ are presented for five species of serranids belonging to the genus *Cephalopolis*. The fish samples used for the study were caught by hook and line, fish corrals, and spearguns during August 1995 to December 1998 from the waters around Palawan Island, Philippines. Information on the LWR of six fishes from other studies conducted in Palawan is also provided.

Introduction

Length-weight relationships (LWR) have both applied and basic uses (Pitcher and Hart 1982). There are cases that fish are landed in the market gutted, headless or without the elongated jaw (e.g., species belonging to family *Belonidae*). There are also circumstances in which the researcher is only able to measure the length of fish samples in the field. These constraints can be overcome if there is a predetermined LWR available to estimate the live weight of a fish given the length, or vice-versa.

There are several on-going fish resource assessments around Palawan, Philippines. Fish visual census is a commonly used method in these fish resource surveys. The work is important, as there is very little information on the LWR of fishes in Palawan. Although we can make use of the LWR of similar species reported from other areas or countries (Kulbicki et al. 1993, Letourneur 1998, Letourneur et al. 1998, Duarte et al. 1999), local information is best for quantitative assessments in the area. The main objective of this paper is to provide the LWR for five species of serranids. For wider information dissemination, it also includes other work on LWR of fishes conducted at the State Polytechnic College of Palawan (Abes 1998, De la Peña 1998, Ulson 1999).

Materials and Methods

A total of 1,753 fish samples belonging to the genus *Cephalopholis* (*C. sonnerati, C. argus, C. miniata, C. boenak, and C. microprion*) were collected from Puerto Princesa market in Palawan, Philippines from August 1995 to December 1998. The number of samples per species is given in Table 1. From observations and interviews, it was noted that hook and lines, fish corrals and spearguns were used in catching the fishes sold in the Puerto Princesa market. Fishes sold in Puerto Princesa market come from fish landing areas as far as the Municipality of Taytay in the north and the Municipality of Balabac down south (Fig. 1). The total length (cm) was measured for all species. Sex is not differentiated in this study, although males and females may have different length-weight relationships. Identification of species followed Heemstra and Randall (1993).

The parameters **a** and **b** of relationships of the form

$$\mathbf{W = a\,L^b}$$

were estimated through logarithmic transformation, i.e.,

$$\mathbf{\ln W = \ln a + b \cdot \ln L}$$

with **a** and **b** estimated via least-squares regression.

Results

The parameters **a** and **b** of the length-weight relationship of five species of serranids and other marine species collected from Palawan are given in Table 1. Except for *Sardinella longiceps*, the estimated values of **b** were close to 3, showing isometric growth among these species. Considering the extent of the ichthyofaunal diversity of Palawan (Schroeder 1980), much remains to be studied about the biology of fishes in this area. Although there is considerable value in conducting resource surveys, subsequent publication of results is essential.

Table 1. Length-weight relationship of 11 species of marine fish collected from Palawan, Philippines.

Species	a	b	n	Length range (cm) min-max	Source
Cephalopholis argus	0.0117	3.10	504	12.7 - 36.0	Present Study
C. boenak	0.0106	3.10	456	9.6 - 26.0	Present Study
C. microprion	0.0109	3.16	213	10.2 - 19.5	Present Study
C. miniata	0.0167	2.99	275	13.9 - 39.0	Present Study
C. sonnerati	0.0116	3.10	305	14.0 - 51.0	Present Study
Decapterus macrosoma	0.6615	3.02	300	11.2 - 15.8	Ulson 1999
Selar crumenophthalmus	0.0213	2.78	270	15.4 - 23.2	Ulson 1999
Siganus canaliculatus	0.0164	2.93	375	11.0 - 18.7	Abes 1998
Sardinella gibbosa	0.0086	3.03	50	10.0 - 13.5	DelaPeña 1998
S. longiceps	0.0242	2.64	200	7.6 - 10.0	DelaPeña 1998
Amblygaster sirm	0.0050	3.20	450	11.0 - 24.0	DelaPeña 1998

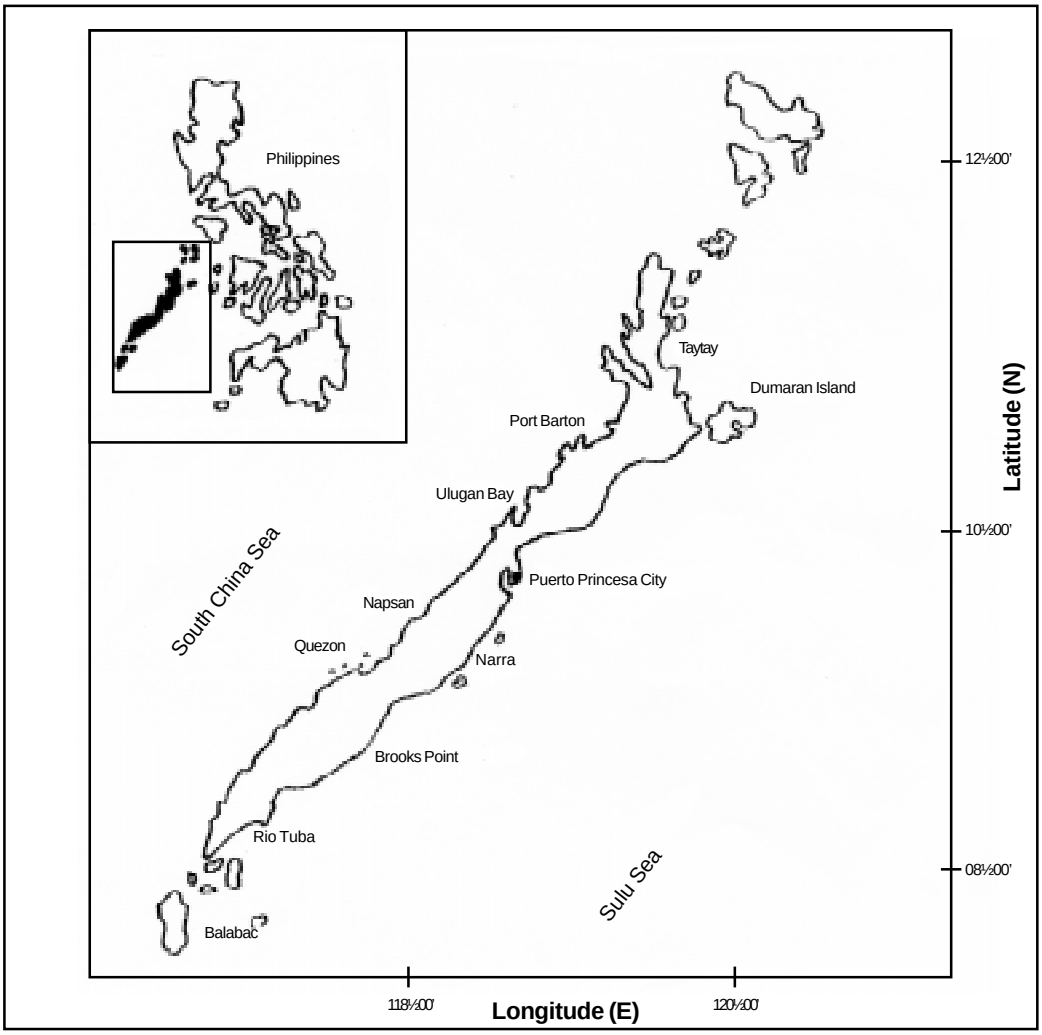

Fig. 1. Map of Palawan showing municipalities where fishes sold in Puerto Princesa market are landed.

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B. J. Gonzales, H. P. Palla, *and* **H. Mishina** *are from the State Polytechnic College of Palawan, Sta. Monica, Puerto Princesa City, Palawan, Philippines.*