Length-Weight Relationships of Major Carps in Kaptai Lake, Bangladesh

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Abstract

Length-weight relationships and condition factors are presented for Indian major carp *Catla catla*, *Labeo rohita*, *L. calbasu* and *Cirrhinus mrigala* (Cyprinidae) in a reservoir of Bangladesh (Kaptai Lake).

Introduction

Kaptai Lake (68 800 ha; Lat. 22°20' - 23°18'N, Long. 92°00' - 92°26'E) was impounded by damming the Karnafuli River of Kaptai, Bangladesh in 1961. The lake was created primarily for hydroelectric power generation (Soni and Kathal 1979, Aquatic Research Group 1986), however, it has also made a substantial contribution to the national economy through freshwater fish production. At the inception of harvesting in the lake (1965-66), landing of the commercially important major carps was nearly 80% of total landings. However, this figure has declined to only 4% in 1993-94, while the landing of unwanted fishes, including tilapia, was increasing very sharply.

The results presented below were obtained in the context of a project devoted to elucidating the causes of these changes, not further discussed here (FRI 1991).

Materials and Methods

The fishes used for this study were collected randomly from the main landing center at Rangamati, during three consecutive seasons from September 1988 to May 1991. Fish were caught by a number of gears, *viz*.gill net, seine net, lift net, hand and long lines, etc. Total length of fish was taken from the tip of the snout (mouth closed) to the extended tip of the caudal fin. Body weight was measured to the nearest gram in triple beam balance after adhering water was removed from the surface of the body.

The length-weight relationship was estimated by using the equation $W = aL^b$. The values of constants a and b were estimated from the log transformed values of length and weight and using the linear regression routine of the MICROSTAT software program. The condition factor was calculated by the usual formula c.f. = $100W/L^3$.

Results and Discussion

Table 1 summarizes our results.

Little needs to be added to this, and it is hoped that the estimated parameters, which complement estimates in Jhingran (1952), will be found useful for estimating major carp weights, given their length.

Table 1. Length/weight relationships of four species of major carps caught during 1988-1991 from Kaptai Lake, Bangladesh.

Species	a	b	N	r	Length (TL, cm) Max	Length (TL, cm) Min	c.f.
L. rohita	0.007 32	3.149	664	0.959	27.5	84.5	1.33±0.01
L. calbasu	0.008 02	3.132	1 212	0.951	20.5	64.0	1.30±0.04
L. mrigala	0.045 12	2.657	253	0.953	20.5	76.0	1.22±0.14
C. catla	0.003 70	3.352	577	0.914	28.5	93.5	1.56±0.18

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