COMPARATIVE STUDY OF THE RELATIVE CONDITION FACTOR IN TWO AIR BREATHING FISHES FROM SORAON LAKE : A CASE STUDY

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An analysis of the relative condition factor (Kn) values showed that *Anabas testudineus* performed better (54% population having Kn values more than 1 and 46% less than 1, Kn range 0.8976-1.1039 with mean value of 1.0017) than *Saccobranchus fossilis* (46% population having Kn values above 1 and 54% below 1, Kn range 0.8172-1.0878 with an average of 0.9850) under the natural conditions of Soraon lake (Faizabad).

INTRODUCTION

The relative condition factor (Kn) is an indicator of the general well-being of the fish. Calculation and utilization of Kn has gained significance towards understanding the nutritional and biological cycle of the fish species (Le Cren, 1951). A survey of the pertinent literature have shown that Kn values of the two important airbreathing fishes, *Anabas testudineus* and *Saccobranchus fossilis*, inhabitating lacustrine conditions, have not been studied till date. These two species constitute an important part of the capture fishery in India. Therefore, present paper describes the Kn values of the above species from a natural lake of Soraon, located in the vicinity of Agriversity, Faizabad.

MATERIALS AND METHODS

The natural Soraon lake (3.0 Km L x 0.3 km W x 3.0 m D), selected for the study, is situated 3 km North-East from the University campus. The lake serves as an important source of capture fishery and is used for various activities by the native people. Netting was done on the forenoon of October 21, 1993 and 50 specimens each of the two species were randomly selected. The total length (to nearest mm) and body weight (to nearest g) were measured in the live condition and fish were used for further experimental studies.

Estimated weight of individual fish was calculated by using the formula $\log W = a + b \log L$. The Kn values were worked out by the formula :

$$Kn = \frac{\text{Observed total body weight of individual}}{\text{Estimated total body weight of individual}}$$

OBSERVATIONS AND DISCUSSION

As is clear from the Table I that the growth performance of Kawai is better than that of Singhi. It is seen that 54% individuals of the former fish have Kn values above 1 where as only 46% of the latter species have Kn values more than 1. In the case of Kawai, Kn values range from 0.8976 to 1.1039. On the other hand Singhi have Kn values varying from 0.8172 to 1.0878. Mean Kn value of the former is significantly higher than the latter (Table I). Feeding habits of Kawai and Singhi are more or less similar. Adults are predominantly insectivorous and feed on insects, insect-larvae, crustaceans, shrimps, worms and, also on algae, higher plants and organic debris. Soraon lake forms natural abode of these fishes.

Table I : Relative condition factor of two airbreathing fishes.

Species	Above 1		Between 1.0 -0.9500		Between 0.9500-0.9000		Below 0.9000		Kn Values	
	No.	%	No.	%	No.	%	No.	%	Range	Mean
a. Kawai	27	54	17	34	05	10	01	02	0.8976-1.1039	1.0017
b. Singhi	23	46	23	46	03	06	01	02	0.8172-1.0878	0.9850

Table II : Relation of total length to Kn value in two airbreathing fishes.

Sl. No.	Kawai		Singhi	
	Total length (cm)	Kn Value	Total length (cm)	Kn value
1.	9.5	1.0021	9.5	0.9904
2.	11.0	1.0230	8.5	1.0129
3.	8.7	0.9809	11.7	1.0039
4.	7.8	0.9915	9.4	0.9567
5.	8.5	0.9945	9.5	0.9512
6.	8.4	0.9941	13.5	1.0374
7.	10.5	0.9490	10.0	1.0878
8.	7.3	1.0345	8.5	1.0129
9.	9.2	0.9987	8.0	1.0503
10.	8.2	1.0164	11.2	1.0259
11.	9.2	1.0921	9.8	1.0091
12.	6.5	1.0703	13.7	1.0304
13.	8.0	0.9760	9.8	1.0091
14.	7.8	0.8976	11.0	0.9500
15.	8.5	0.9945	9.3	0.9624
16.	8.5	0.9945	9.5	0.9512
17.	7.5	0.9716	8.0	0.8172
18.	5.8	1.0686	7.5	1.0374
19.	9.5	1.0021	6.5	1.0580
20.	6.5	0.9101	12.3	0.9797
21.	9.2	1.0205	9.8	0.9351
22.	9.5	1.0021	9.2	0.9683
23.	6.5	0.9821	9.8	0.9351
24.	9.8	0.9970	9.5	0.9904
25.	8.5	0.9945	9.8	0.9351
26.	6.5	1.0703	13.5	1.0374
27.	7.2	1.1039	13.4	1.0410
28.	6.7	1.0478	11.0	0.9500
29.	10.0	1.0293	9.5	0.9904
30.	8.2	1.0164	9.5	0.9904
31.	5.5	1.03227	9.4	0.9962
32.	8.2	0.9187	8.5	1.0129
33.	6.5	0.9101	9.4	0.9962
34.	7.3	1.0345	9.5	0.9904
35.	7.5	1.0749	8.5	1.0129
36.	7.3	0.9888	9.8	1.0091
37.	8.3	1.0089	9.8	1.0091
38.	8.3	1.0089	9.5	0.9904
39.	8.3	1.0089	9.4	0.9962
40.	7.2	0.9978	8.5	1.0129
41.	6.2	0.9418	9.5	0.9512
42.	8.3	1.0089	9.3	0.9624
43.	8.3	1.0089	9.4	0.9962
44.	7.0	1.0169	9.3	0.9624
45.	9.3	1.0142	7.5	0.9868
46.	8.3	1.0089	6.5	1.0141
47.	9.0	0.9618	9.8	1.0091
48.	7.3	0.9888	9.8	1.0091
49.	7.6	0.9633	9.5	0.9904
50.	7.6	0.9633	9.4	0.9962

One school of scientists have opined that the Kn factor is closely related to the breeding period of the fishes (Le Cren, 1951; Sarojini, 1957; Pantulu, 1961; Neelkantan & Pai, 1985). On the other hand, another school of workers have observed that Kn is not related to the breeding cycle and can be better related to the feeding (Hile, 1948; Qasim, 1957; Bhatt, 1970; Shrivastava & Pandey, 1980; Das Gupta, 1991). Present study favours the second view as the fishes were well fed, healthy and in the postspawning phase of their gonadal cycle.

The Kn of Kawai and Singhi, from a natural lake, is being reported for the first time. The Kn is an indicator of general well-being of the fish; values greater than 1 indicate that the growth performance of the fish is good, where as its values less than 1 point the converse condition (Le Cren, 1951). An analysis of the Table II shows that total length of fishes having Kn values more than 1 vary from 5.5 to 11.0 cm in Kawai and from 6.5 to 13.7 cm in Singhi. Thus, it may be concluded that Kn is not related to the total length of the fish but it depends on the individual's total body weight.

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