

Length-Weight Relationship of the Singara Fish (*Sperata seenghala*) in Baran Dam of District Bannu, Khyber Pakhtunkhwa (KPK), Pakistan

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Abstract: A study was carried out on giant river catfish (*Sperata seenghala*) during October 2013 to March 2014. Eight Fishes per sample were collected from Baran dam, Khyber Pakhtunkhwa. Length weight relationship shows a wide variation in results. Regression coefficient b-value ranged between 1.31-4.94, showed growth differences in each month. Coefficient of correlation (r) ranged between 0.89-0.98, showed strong correlations in different months ($r < 0.90$).

Key words: Singara Fish • Length-Weight Relationship (LWRs) • Baran Dam

INTRODUCTION

The giant river catfish (*Sperata seenghala*), locally known as "Singara" is one of the important bagrid catfish and was once available in rivers, floodplains, inundated swamp fields, ditches, canals and other freshwater areas throughout Pakistan, Afghanistan, India, Nepal and Bangladesh [1-4]. *S. seenghala* has been considered as one of the most important fish among indigenous catfish species due to good taste and high market demand. The fish is carnivorous and subsists on various types of organisms such as fish, frogs, snakes, insects, earthworms, tadpoles, crustaceans and debris [4]. *S. seenghala* usually spawns twice a year from May to July and from September to November in natural condition [3, 4]. Aquaculture of this fish has not been so progressed due to difficulties in spawning, breeding and rearing of brood stocks in captive conditions [5]. Recently, natural stocks of *S. seenghala* have drastically reduced due to natural and man-made catastrophes, degradation of aquatic environment and the reduction of many wet lands and water areas of Pakistan. These factors have created a serious problem to their genetic resources and thus, the fish has become gradually endangered [5]. In order to maintain this fish population as well as to conserve their biodiversity, development

of suitable techniques for the rearing and culture of *S. seenghala* is very essential. Very few attempts have ever been made for breeding and rearing of brood stock of Singara fish [2, 4-6] however, information regarding to the LWRs and growth conditions of this important culturable fish in Baran dam of district Bannu was not available, so, our present study conducted with this point of view.

MATERIALS AND METHODS

A total of 88 fishes were collected bimonthly during the period from October 2013 to March 2014. Samples were preserved in 5% formalin. In laboratory, samples were washed with tap water and dried with blotting paper and then measured from tip of the snout to the end of the caudal fin in cm. Samples were weighed in grams, using a digital balance. Length-weight relationship was estimated by linear regression equation followed by Zubia and Rehana [7].

$$Y = a + bX$$

where,

Y = Fish weight a = intercept

X = Fish length b = regression slope

Table 1: Parameters of the length-weight relationship (LWR) of Singara Fish (*Sperata seenghala*) collected from Baran Dam, district Bannu, KPK, Pakistan.

Month	Length	Weight	a	b	r	r ²	p-value
	Min-Max (cm)	Min-Max (gm)					
October 2013	39.5-53.0	296-1140	-1605	4.94	0.924	85.5	0.001
November 2013	30.5-43.0	204-482	-470	2.27	0.897	80.5	0.003
December 2013	30.0-45.0	294-546	-599	2.54	0.968	93.7	0.000
January 2014	31.0-40.0	336-510	-297	2.00	0.983	96.5	0.000
February 2014	20.5-33.0	245-406	-42.3	1.31	0.964	93.0	0.000
March 2014	37.5-53.0	341-710	-533	2.33	0.949	90.0	0.000

RESULTS AND DISCUSSION

Results of length-weight relationship of Singara fish (*Sperata seenghala*), length (min-max), weight (min-max), intercept *a*, regression slope *b*, coefficient of correlation (*r*), coefficient of determination (*r*²) and p-values in each month are presented in Table 1.

In the present survey, growth rate of (*Sperata seenghala*) of both male and female Singarawas very good in relation to total length, of which *r*² value was much stronger as compare to normal weight-length correlation value. The normal weight (Wt) and total length (TL) correlation value is 0.60, but in case Singara fish, correlation between Wt and TL of Singara fish was much stronger as compare to normal *r*² value. In the present survey, the *r*² value was in-between 0.897 to 0.983. Though such high value of *r*² represents that the growth of Singara fish in Baran Dam was much better due to availability of all growth factors necessary for this fish, however, there might be some other factors especially the siltiness of Baran Dam have produced some bad impact on the monthly growth rate of its various fish species in the future. It is therefore highly necessary to remove the slit from Baran Dam as soon as possible, which have occupied the large area, especially the western side of Dam, where slit have covered fully and to start other important progressive work on Dam. The road from Bannu to Baran Dam is also not well, so it is also important to repair this which is about 8 km long. These all suggestions are important for the growth of all types of fishes. It is also necessary to note for the repairing of Baran dam water intake, because large number of larva fishes including Singara fish are flown away from Dam through water intake due to leakage and to bring new varieties of fishes to Baran Dam.

Hence, our present study is first of its kind in Baran Dam and it will help to understand the wellbeing of *S.seenghala* in Baran Dam, the baseline information on

LWRs for *S. seenghala*, which will also be useful for researchers and fishery managers in future.

CONCLUSION

The study of weight-length relationship Singara fish (*Sperata seenghala*) species of this study of length could be consider as very useful tools in the fisheries research, because it permits the conversion of growth in length equation to growth in weight that can be used in fisheries management, fish biology, physiology, ecology, health condition and growth pattern of fish.

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