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Interrelationships between Various Body Measurements and Meristic Characters of *Channa Striata* from District Badin, Sindh, Pakistan

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Abstract: Interrelationship between various body measurements and meristic characters in *Channa striata* (Bloch) was enumerated from 200 samples of fish purchased from various fish markets of District Badin during April to September 2011. The standard, fork, fin dorsal, fin pectoral, circumference and head lengths were noted to be highly dependable verses body length in case of male. While in female the length up to hyporal bone (SL), length of pelvic fin, length of dorsal, length of pectoral fins and length of head observed to be ideal to each other. Other body characters such as circumference of body (r= 0.99) and length of fin caudal (r = 0.99) seems to be highly dependable in relation to length of body. Five different counts taken into account such as fin rays of dorsal, ventral, pectoral, pelvic and rays of caudal fin respectively. Finally results of interrelationship of various body characters and meristic counts revealed that the identical stock of *Channa striata* available in District Badin.

Keywords: *Channa striata*, Interrelationship, District Badin, Meristic features

1. INTRODUCTION

The analysis of counts and characteristics is the prerequisite for population investigation, management, and dissertation, variation in interpopulation of fish and fisheries study (Nelson 1984). In open water bodies there are great chances for the inbreeding among species, the measurements and counts plays vital to identify the original stock. Numerous species of Freshwater murrels are available in our country like, *C. punctatus*, *C. marulus*, and *C. Orientals* and *C. guacha* among them *Channa striata* locally known as Mundho is extremely eaten and is common throughout Pakistan. It is found in shallow waters rivers, tanks, stagnant pools where aquatic weeds and long grasses sparingly grow. It is a typical piscivorous. Its food consists of 10% insects, 35% fishes 20% water, 5% mud and sand. It breeds from April to August and only once a year. In breeding season the fish built next builders in the sense that it is never constructed by the fish for dwelling purpose but only for the breeding purpose. The male usually guards the next vigoraly and keeps away the intruders. (Ganguly and Bhatachariya 1933) The color of *C. striata* is dark grayish or blackish becoming dirty or yellowish white beneath lower surface of the mouth spotted with gray or black from the sides of the abdomen. The fins are grayish in young with a large black osseous at the end of dorsal. Investigations on the characterization of the population of snakehead, *Channa striata* occurs in different water bodies of Sindh helps to distinguish the population available in district Badin on the basis of characters and counts.

2. MATERIALS AND METHODS

A sample of 200 specimen ranged between 67.0 to 245 mm were acquired from District Badin, Sindh, during April to September, 2011 counts and body measurements were recorded in the field. Obtained samples were immediately transferred to laboratory. Different counts and characters were documented on the basis of each fish easily and measurement was takes place with the help of electronic balance while rays of different paired unpaired fin counted. Variables were characterized in relation to weight of the fish and length, Standard length (SL), Size of head (SH) length pectoral (Pec: FL), pelvic (Pel: FL), dorsal (DFL), ventral (VFL) and eye diameter (ED). Coefficients of correlation were enumerated on average bases of different counts and character at confidence limits 95% procedure was used.

3. RESULTS

Interrelationship between different body parameters in terms of body length of *Channa striata* (Bloch) were considered for either sexes from district Badin and exhibited in Tables 1 and 2 respectively. The standard, fork, fin dorsal, fin pectoral, circumference and head lengths were noted to be highly dependable verses body length in case of male. While in female the length up to hyporal bone (SL), length of pelvic fin, length of dorsal, length of pectoral fins and length of head observed to be ideal to each other. Other body characters such as circumference of body (r= 0.99) and length of fin caudal (r = 0.99) seems to be highly dependable in relation to length of body **(Table 1, 2).** Five different counts taken into account such as fin rays of dorsal, ventral, pectoral, pelvic and rays of caudal fin respectively, their ranges and mean values are summed up in **(Table 3)** . There is no any major difference was noted among the sexes. The circumference of the body (girth) showed significantly correlated in female than that of male. It is therefore determined that the male in

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Table 1. Morphometric measurements of various body parts of Male, *Channa striata* (Bloch) from District Badin, Sindh, Pakistan

Length group mm	No. of Fish	TL mm	SL mm	% SL	HL mm	% HL	ED mm	% ED /HL	GM mm	% GM /HL	Girth mm	% Girth	DFL mm	% DFL	VFL mm	% VFL	Pec FL mm	% Pec FL	PFL mm	% PFL	TFL mm	% TFL
60.1-80.0	10	67	57.5	85.18	20	29.62	5.0	25.0	5.0	25	30.0	44.44	3.0	44.44	20	29.62	5.0	7.40	2.0	2.96	5.0	7.40
80.1-100.0	30	98	88.7	89.86	29.05	29.88	5.0	16.94	5.0	17.21	39.4	39.91	3.0	30.39	20	20.26	5.0	5.06	2.0	2.02	5.0	5.06
100.1-120.0	20	118	98.5	83.12	34.80	29.36	4.86	13.96	13.54	38.90	64.0	54.0	5.5	46.41	39.5	33.33	7.9	6.66	5.0	4.21	10.0	8.43
120.1-140.0	32	132	109.6	82.83	74.29	28.12	5.94	14.72	.11.99	16.13	143.1	54.18	6.33	45.86	82.0	31.04	8.2	6.19	5.0	3.78	24.1	9.12
140.1-160.0	10	157	120.8	76.69	44.95	28.53	6.45	14.34	14.35	31.92	84.05	53.65	6.7	38.53	56.5	35.87	10.0	6.34	5.0	3.17	16.5	10.4
160.1-180.0	17	174	146.4	84.04	53.75	30.85	6.69	12.44	15.85	29.48	90.7	52.06	8.7	52.29	58.5	33.58	10.0	5.74	5.0	2.87	19.7	11.30
180.1-200.0	10	196	165.0	84.18	58.0	29.59	6.84	11.79	17.72	30.55	106.0	54.08	9.1	42.85	56.3	28.72	10.0	5.10	5.0	2.55	20.0	10.20
200.1-220.0	05	210	176.66	84.12	61.52	29.29	7.63	12.40	22.06	35.85	113.33	53.96	10.0	28.57	70.0	33.33	10.4	4.76	5.0	2.38	20.5	9.76
22.10-240.0	05	233	193.3	82.85	67.08	28.75	7.66	1.41	19.67	29.32	126.6	54.26	11.0	42.91	70.0	30.0	20.0	8.57	8.0	3.42	20.5	8.78
140.1-260.0	02	245	200	81.54	67.35	27.46	7.69	11.38	24.9	36.97	125.25	51.07	11.0	44.85	80.25	32.72	10.5	4.28	5.0	2.03	20.5	8.35
Total	141																					

Table 2. Morphometric measurements of various body parts of female, *Channa striata* (Bloch) from District Badin, Sindh, Pakistan

Length group mm	No. of Fish	TL mm	SL mm	% SL	HL mm	% HL	ED mm	% ED /HL	GM mm	% GM /HL	Girth mm	% Girth	DFL mm	% DFL	VFL mm	% VFL	Pec FL mm	% Pec FL	PFL mm	% PFL	TFL mm	% TFL
60.1-80.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
80.1-100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	--
100.1-120.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
120.1-140.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
140.1-160.0	02	160	13	81.25	44.88	280.5	6.92	15.41	16.99	37.85	80	50	7.5	46.87	4.0	25.0	1.0	6.25	0.5	3.12	1.5	9.37
160.1-180.0	20	174	14.55	83.62	50.09	287.8	6.45	12.87	15.85	31.64	93.5	64.26	8.45	48.56	5.85	33.62	1.05	6.03	0.5	2.87	1.5	8.62
180.1-200.0	19	195	16.55	84.87	55.51	284.6	6.73	12.12	15.56	28.03	104	53.53	8.72	44.71	5.88	30.15	1.0	5.12	0.5	2.56	2.0	10.25
200.1-220.0	10	217	18.21	83.87	60.36	278.02	7.91	13.10	21.49	35.60	112	51.95	10.0	46.06	7.0	32.24	1.38	6.35	0.5	2.30	2.0	11.51
22.10-240.0	05	235	19.05	82.97	70.0	297.87	7.87	1.24	19.88	28.4	130	55.31	10.0	42.55	7.0	29.78	1.25	5.31	0.5	2.12	2.5	10.6
140.1-260.0	03	245	20.0	81.63	69.25	282.65	8.65	12.49	22.20	32.05	135	48.97	10.0	40.81	7.0	28.57	1.5	6.12	0.5	2.04	2.5	10.20
Total	59																					

Table .3 Comparisons of different body counts in *Channa striata* (Bloch) from district Badin.

Different body counts	Male		Female	
	Range	Mean	Range	Mean
Dorsal fin ray	30-35	30 ± 5	30-35	30 ± 5
Ventral fin ray	20-30	25 ± 5	20-30	30 ± 5
Pectoral fin ray	10-12	11 ± 1	10-12	11± 1
Pelvic fin ray	5-8	6.5± 1.5	5-8	6.5±1.5
Tail fin ray	15-18	16.5± 1.5	18-20	17.5 ± 1.5
Scales counts from lateral line	35-40	37 ± 3	40-45	42 ± 3

present study noted to be smaller and slender in relation to females. Finally decided that the alike population of *Channa striata* available in District Badin.

4. DISCUSSIONS

The first step to investigate stock structure of a particular species mansural and measurement of various body parts are of great importance (Motomura *et al* 2007). These analysis are essentially required for the proper management of stock inter-population/ intraspecific variation (Hadden and Willis, 1991; Shepherd 1991; Turan, 1999). Morphological differences could be attributed to one or more variables, like phonotypic plasticity,ecological character displacement, and local adaptations (Nelson, 1984). To understand the stock origin, identification and separation morphometric variables are often considered (Narejo 2010). Interrelationship of various body characters of *C. striata* in the present study revealed that the standard, fork, fin dorsal, fin pectoral, circumference and head lengths were noted to be highly dependable verses body length in case of male. While in female the length up to hyporal bone (SL), length of pelvic fin, length of dorsal, length of pectoral fins and length of head observed to be ideal to each other. Different scientist like Chondar (1977; Prakash and Verma 1982; Kohinoor 2000; Lashari *et al*., 2004) concluded that the standard length. Pelvic fin length, pectoral fin length, dorsal fin length and head length as dependable variable and are highly correlated with body length as in dependable variable. The results of above scientist are in accordance with the present studies. Dependability of different characters as observed during the investigations could be judged to be great from the correlation co-efficient values in both the sexes and mixed. The value of analysis of regression indicated that the Ventral Fin Length, Pelvic fin length, and mouth gape detected to be with extraordinary values in both the sexes, while Head length measurement establish high value in male and Dorsal fin length, Circumference of the body and Tail fin length exhibited enhanced values in female, rest of the characters did not show any variation among the sexes. Earlier comparable analysis has been displayed various writers (Mehta and Bapat 1977; Lashari *et al*. 2004; Narejo *et al.,* 2008). Furthermore it is perceived that the male of *Channa striata* during the studies become more slender and small in relation to female. Numerous writers suggested identical observations with the present investigations (Narejo and Jafri, 1997; Narejo *et al.,* 2000; Narejo *et al.*, 2003;Narejo *et al*.,2010). Finally it was concluded that alike population of *Channa striata* occurs District Badin.

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