CATCH STATISTICAL ANALYSIS OF CAT FISH *Rita rita* (Ham.) IN RIVER KOSI OF DISTRICT KHAGARIA, BIHAR DURING THE YEAR 2005-06.

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ABSTRACT

It is essential to have a complete data of the fisheries statistics before any planning is done for the development of fisheries of a particular area. order to have complete idea of catch statistics field work at 15 days interval of Chautham, Lalpur and Sonbarsaghat of river Kosi in Khagaria district have been done and the fish market survey was done. The catches during the entire period were directly examined by random sampling.The catch of *Rita rita* (Ham.) were poor during the whole season. The fish landing increase during monsoon month mainly due to application of wider range of fishing gears. The capture of small and medium sized fishes in such a huge quantity is found to pose adverse effect on the fishery of *Rita rita* (Ham.). A detailed investigation on the catch statistics of *Rita rita* has been made for one year 2005-2006. The impact of juvenile fishing also a factor effect adversely on the fishery of *Rita rita.*

KEY WORDS: Fisheries statistics, cath, particular area, juvenile fishing, Rita rita

INTRODUCTION

It is essential to have a complete data of the fisheries statistics before any planning is done for the development of fisheries of a particular area. Fish population can be defined as relative abundance in a given area. It is a biological entity which can be checked by means of various forces. Population or stack as it may also be called may be limited in their distribution by natural barriers (biological or physical etc.) or by certain circumstances that favour their existence in certain localities. A knowledge of effect on fishes of certain physical, chemical, biological factors of the environment avoids in discovering the casual factors of natural fluctuations in their abundance.Whether a population is declining, increasing or maintaining itself can be detected from changes in age composition, yield or shifting of the surroundings. A knowledge of range, migration and seasonal overlapping of different stocks of fishes is essential for the successful control and management of population.It is essential to have information on the total fish landings, monthly size composition and the efforts put in for the calculation of the degree of available resources.

For the maintaining of stock and get maximum yield in every year it is possible after knowing the exploitation and its effects. Central Inland Fishery Research Institute, Barrackpore, West Bengal has done noteworthy work for the collection of catch statistics of some rivers and estuaries. Jhingran (1956) studied on the capture fishery of some commercially important fishes including *Rita rita* (Ham.) of river Ganga at Buxar (Bihar, India). Pillay (1960) has worked on capture fishery of Hooghly-Matlah estuaries system. Shetty and Ghosh (1963) gave details of the Mahanadi estuary fishery.

Fishery of Ganga river has been adversely affected due to fast industrialization on the Gagetic belt (Bilgrami *et al*., 1979). Johar (1981) has studied the adverse impact of industrialization on the population structure of *Rhinomugil corsula* (Ham.) of river Ganga at Barauni-Mokamah sector in Bihar. Bilgrmi *et al.* (1983) described the impact of juvenile fishing on the fisheries of river Ganga. Many workers have fish catch statistics viz. Khan and Kamal (1980), Arya, *et al.* (2001), Maheshwari (2004), Dalmas (2005), Balogun (2005), Vyas *et al.* (2007) etc. The frequent presence of *Rita rita* (Ham.) in different fishing areas of river Kosi in district Khagaria has attracted the fishermen of this area to specialize in the fishing of this species throughout the year. A detailed investigation on the catch statistics of *Rita rita* has been made for one year 2005-2006.

MATERIAL AND METHODS

In order to have complete idea of catch statistics field work at 15 days interval of Chautham, Lalpur and Sonbarsaghat of river Kosi in Khagaria district have been done and the fish market survey was done. The catches during the entire period were directly examined by random sampling. The methodology adopted for the catch statistics was suggested by Pillay (1960) and Shetty and Ghosh (1963). The total monthly catch statistics, average monthly and average seasonal landings were estimated as follows:-

1.   Estimated monthly landings (for m^{th} month)

$$L_m = \sum_{P=1}^{t_m} \frac{T_m}{t_m} \, d_{mp}$$

Where, P   = 1

dmp   = Landing on the Pth day

t_m = total number of days visited

T_m = total number of days in a month

L_m = estimated monthly landing.

2.   Estimated yearly landings :—

$$S_1 = \sum_{m}^{Q} \sum_{P=1}^{t_m} \frac{T_m}{t_m} \, d_{mp}$$

where, S_1 = Yearly landing

Q   = 12

3.   Estimated seasonal landings :—

$$S_2 = \sum_{m=1}^{Q} \sum_{P=1}^{t_m} \frac{T_m}{t_m} \, d_{mp}$$

where, Q   = 4 (no. of month in a season)

S_2 = Seasonal landings.

4.   Estimated average monthly landings :—

$$LA_1 = \frac{1}{12} \sum_{m=1}^{Q} \sum_{P=1}^{t_m} \frac{T_m}{t_m} \, d_{mp}$$

5.   Estimated average seasonal landings :—

$$LA_2 = \frac{1}{3} \sum_{m=1}^{Q} \sum_{P=1}^{t_m} \frac{T_m}{t_m} \, d_{mp}$$

6.   Deviation from the average monthly landings :—

$$LA_1 - Lm$$

7.   Deviation from the average Seasonal landings :—

$$LA_2 - S_2$$

8.   Percentage monthly landings :—

$$\frac{Lm}{S_1} \times 100$$

9.   Percentage Seasonal landings :—

$$\frac{S_2}{S_1} \times 100$$

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MONTHLY LANDINGS OF *Rita rita* (HAM.) FROM KOSI RIVER AT SONBARSAGHAT

(2005-06)

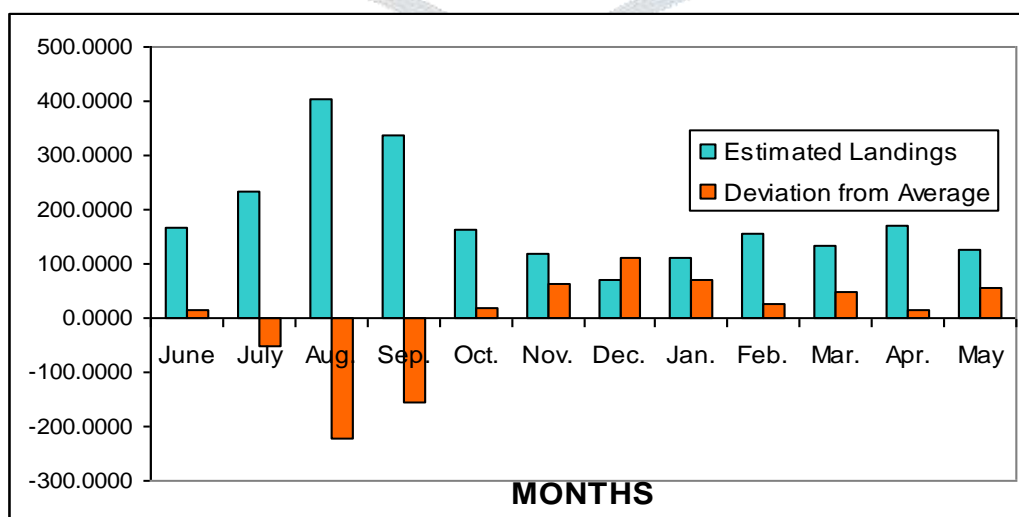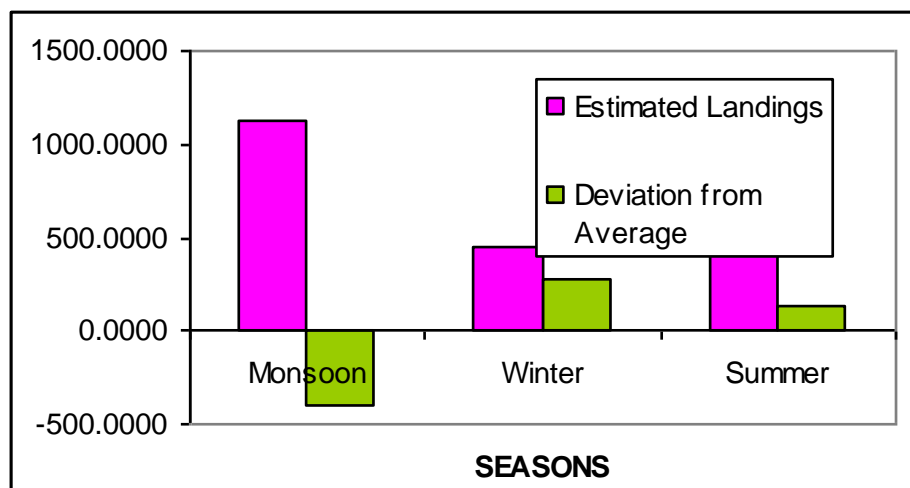| Months	Estimated Landing (kg)	Percentage (%)	Deviation from Average	Average Monthly Landing (kg)	Total estimated landing (kg)
June	165.63	1.8973	+16.2216		
July	232.1435	2.6593	- 50.2836		
Aug.	402.3722	4.6094	- 220.5135		
Sept.	335.7525	3.8462	- 153.8926		
Oct.	162.2385	1.8585	+ 19.6213		
Nov.	118.815	1.3611	+ 63.0448		
Dec.	70.5056	0.8077	+ 111.3542	181.8516	2182.2199
Jan. 2006	111.0071	1.2716	+ 70.8527		
Feb.	155.6466	1.7830	+ 26.2132		
Mar.	132.5482	1.5184	+ 49.3116		
Apr.	168.6487	1.9319	+13.2111		
May	127.0031	1.4549	+ 54.856		

TABLE . 1

TABLE. 1.1

SEASONAL LANDINGS OF *Rita rita* (HAM.) AT SONBARSAGHAT

(2005-2006)

TABLE. 2

TABLE. 2.1

RESULTS

The catch of *Rita rita* (Ham.) were made throughout the year by the special gear locally called

Seasons	Estimated Landing (in kg.)	Percentage	Deviation from Average	Total Estimated Landing	Average Seasonal Landings
Monsoon	1132.5067	12.9736	- 405.0671		
Winter	455.9743	5.2235	+ 271.4652	2182.3187	727.4395
Summer	593.8376	6.8028	+ 133.6019		

'Bansi' and 'Dauni' which is a type of 'Hook and line'. During monsoon and post monsoon period *Rita* is collected in large amount. Besides these, *Rita rita* was also found to be caught by another type of gear known as "Nets and tackles". The fish thus collected were usually brought to Sonbarsaghat, Khagaria district market or Aarhat, twice a day one in the morning and the other in the afternoon. Collection data of both the hours in a day were recorded.

In the present study the minimum fish landing was found to be 70.5056 kg (0.80774%) and the maximum landings were 402.3722 kg (4.6094%) recorded in the month of December 2005 and August 2005 respectively. Estimated average monthly landings were 181.8516 kg. while the deviation from the average monthly landings observed were 220.5135 kg and +111.3542 kg in the month of August and December respectively (Table 2,2.1). Statistics recorded were 12.9736%, 5.2235% and 6.8028% in monsoon according to seasonal variations of the catch, winter and summer respectively. Average landing data of season was 727.4395 kg

DISCUSSION

The catch of *Rita rita* (Ham.) were poor during the whole season and it ranged between 70.5056 kg to 402.3722 kg (Fig. 2,2.1). Probably it is due to the climatic, physico-chemical condition of the river water and other factors such as decrease in the appliance of the fishing gear to capture this species during winter. During the summer season irregular trend is observed and the first peak of lesser magnitude

(127.0031 kg) is observed in the month of May 2006. Later on fish landing starts increasing from May onwards and reaches a first peak of higher magnitude (402.3722 kg) in the month of August 2005. The fish landing during monsoon ranged between 165.63 to 335.7525 kg. The fish landing increase during monsoon month mainly due to application of wider range of fishing gears. Jhingran (1956) studied the capture fishery of river Ganga at Buxar (Bihar) and found maximum landings of *Rita rita* in the month of November while minimum landings in the month of January 1953 and 1954 respectively.

Statistical analysis between fish landings and some of the climatic and physico – chemical parameters were performed. The capture of small and medium sized fishes in such a huge quantity is found to pose adverse effect on the fishery of *Rita rita* (Ham.). The impact of juvenile fishing also a factor effect adversely on the fishery of *Rita rita*.

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