



E-ISSN: 2347-5129  
P-ISSN: 2394-0506  
(ICV-Poland) Impact Value: 5.62  
(GIF) Impact Factor: 0.549  
IJFAS 2017; 5(2): 01-04  
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www.fisheriesjournal.com  
Received: 01-01-2017  
Accepted: 02-02-2017

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## Studies on fish productivity in Barchar dam, Sidhi (M.P.)

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### Abstract

A study was carried out to examine the fish productivity in Barchar dam, Sidhi (M.P.). Sampling was carried out during two seasons 2012-13. Fish growth, production and marketing if carried out efficiently, will be a major contribution to the solution of the world hunger, this more widely recognized now, specially in the developed area, that it was few years ago. But in the developing part in the world little attention has been paid to this aspect of the problem. Barchar dam, Sidhi (M.P.) is eutropic because it is shallow and have a hypolimnion smaller than the epilimnion. It is quite potential for fishery biology.

**Keywords:** Fish productivity, Barchar dam, Sidhi

### 1. Introduction

In the world, India is amongst the top three producers of rice, wheat, liquid milk, poultry products, fruits, vegetables, coconut, tea, spices, marine and fresh water products including fish and shrimp. Fishes are rich in protein, vitamins and mineral salts and are also known as valuable protective food. Fish forms an important item of the diet in many areas of the world. The development of fisheries is therefore, one of the most promising industry in the world. Today problems of deforestation, soil erosion, proliferation of aquatic weed, spread of water borne disease, adverse effects on fish population, radio-active pollution, pesticides, insecticides and chemicals, ill effects of uncontrolled tourism, socioeconomic and socio-cultured problem, etc. are some which have disrupted the balance between nature and mankind. There is an urgent need for the development of preemptive and restorative activity for ecoredamation so that development should be sustainable and science based. The task of environment conservation can be achieved by taking certain steps during development stage and by measure participation of public.

India is blessed with vast inland water resources in the form of rivers, estuaries, dams natural a bodies have been divided into five riverine systems and their tributaries extending to a len-Indus, Ganges, Bramhaputra, East flowing riverine system and West riverine system. All and irrigation channels have and area of roughly 13000 km. These water bodies harbor richest and diversified fish fauna of the world comprising 930 fish species belonging to 32 India on the basis of drainage can be divided broadly into two major rivers systems. (i) Ganga, Indus and Bramhaputra and (ii) peninsular river system (East coat and West coat). Fresh water fisheries or inland fisheries, they include fish found in rivers, irrigation canals, reservoirs, lakes, dams, tanks and ponds. *Rohu*, *Catla*, *Mystus*, *Gourami* and *Gambusia* are some of the best varieties of fresh water fish.

Primary production can be defined as the synthesis of organic matter of high potential chemical energy from dissolved organic materials of low potential chemical energy. Autotrophic plants taking part in such production are referred as primary producers. Productivity in a board sense is concept of organic synthesis (potential) which measures the ability of an area to support a biological population and to sustain a level of growth and reproduction (Ray, 1966) [1].

"The hills of many wonders" nestles peacefully in the Northern spurs of the Vindhya, a place of tranquil forest glades and quite rivers and streams where calm and repose are all-pervading. This loveliest of Nature's gift is also hallowed ground blessed by the gods and sanctified by the faith of pilgrims for Bhaversen spiritual legacy stretches back to legendary ages.

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It was in these deep forest that many sents spent their many years of life at Barchar dam, Sidhi (M.P.)

Rewa (M.P.) is 80 km. north from Sidhi city and Barchar dam 140 km. from Rewa, lies between latitude 23°15' north and longitudes 81°45' east Sidhi is a hilly tract due to this reason all ground is undulating except some part near Sidhi is plain. The slope (steep) of the eastern region is towards west and of western region is towards east but the slope in all regions is towards north. The present work includes the different sites of Barchar dam which is of great significance.

## 2. Materials and Methods

Fishes were caught for the present study from Barchar dam of Sidhi, by local fisherman by operating cast net and during Government operation using drag nets and gill net for its harvesting. A period of one year from 2013. Fishes were identified using the standard keys of Day (1989) [2], Mishra (1959) [3], Jhingran (1991) [4], Jayaram (1999) [5] and Shrivastava (1998) [6].

During 2013 the highest values of gross primary production and net primary production were noted at surface and at one

meter depth at 3 different sites. Two peaks of primary production were noticed. One in summer (April and other in winter [Nov. & Dec.]). The monthly data of primary production for the years 2012-2013.

## 3. Results and Discussion

District Sidhi is very rich in water resources. There are many rivers, streams, ponds, lakes and stop dams. The waters which have covered large area are not much utilized so far for the benefit of the district. These are of great importance from the point of view of fish supply and development of fishery. Knowledge of pisciculture is essential for sound and practical planning in this respect. However, there has been a great difficulty in catching fish from turbulent streams and rivers running between difficult terrains where traditional collecting techniques do not yield the desired result. In view of it, there is a vast scope of exploring the fish fauna of waters of Barchar dam.

The monthly percentage composition of the fish catch for 2012-2013 is shown in table 1.

**Table 1:** Monthly data of Net primary production (gc/m<sup>2</sup>/day) of Barchar dam of different sites, year 2012-13.

Months	Sites	2012				2013			
		0M	1M	2M	3M	0M	1M	2M	3M
Jan.	S <sub>1</sub>	4.9	5.11	0	0	5.11	3.8	0	0
	S <sub>2</sub>	0.035	4.048	0	0	5.05	5.27	0	0
	S <sub>3</sub>	3.312	2.88	2.16	0	4.9	5.045	0	0
Feb.	S <sub>1</sub>	5.976	4.176	0	0	4.89	5.26	0	0
	S <sub>2</sub>	6.264	4.329	0	0	4.18	5.04	0	0
	S <sub>3</sub>	3.745	1.23	0	0	5.12	3.88	0	0
March	S <sub>1</sub>	3.17	3.242	1.98	0	5.05	4.186	0	0
	S <sub>2</sub>	4.753	1.655	0	0	5.25	5.68	0	0
	S <sub>3</sub>	4.395	1.395	0	0	6.05	6.13	0	0
April	S <sub>1</sub>	7.23	6.748	2.09	0	6.34	6.495	0	0
	S <sub>2</sub>	7.08	6.48	0	0	5.84	5.832	0	0
	S <sub>3</sub>	5.328	5.93	0.36	0	7.49	6.19	0	0
May	S <sub>1</sub>	3.04	1.395	0	0	0	4.25	0	0
	S <sub>2</sub>	1.73	1.65	0	0	3.17	2.9	0	0
	S <sub>3</sub>	2.235	1.085	0	0	3.68	3.168	0	0
June	S <sub>1</sub>	2.165	1	0	0	3.03	0	0	0
	S <sub>2</sub>	2.09	1.44	0	0	2.17	0	0	0
	S <sub>3</sub>	1.155	3.168	0	0	1.95	0	0	0
July	S <sub>1</sub>	1.445	0	0	0	2.17	0	0	0
	S <sub>2</sub>	0	0	0	0	0	0	0	0
	S <sub>3</sub>	0	0	0	0	0	0	0	0
Aug.	S <sub>1</sub>	1.44	0.58	0	0	1.08	1.156	0	0
	S <sub>2</sub>	0.36	0.936	0	0	1.81	2.376	0	0
	S <sub>3</sub>	0.4	1.08	0	0	1.37	1.155	0	0
Sept.	S <sub>1</sub>	1.875	0	0	0	3.68	0	0	0
	S <sub>2</sub>	1.7	0	0	0	2.73	0	0	0
	S <sub>3</sub>	1.44	0	0	0	2.38	0	0	0
Oct.	S <sub>1</sub>	2.955	3.24	0	0	3.67	3.384	0	0
	S <sub>2</sub>	2.94	3.77	0	0	3.25	2.71	0	0
	S <sub>3</sub>	3.7	2.08	0	0	3.81	2.9	0	0
Nov.	S <sub>1</sub>	6.06	4.465	0.65	0	2.32	3.74	1.944	0
	S <sub>2</sub>	5.328	3.456	0	0	3.51	3.45	2.16	0
	S <sub>3</sub>	4.9	3.168	1.98	0	3.72	2.67	1.8	0
Dec.	S <sub>1</sub>	7	5.115	0	0	4.82	4.97	3.74	0
	S <sub>2</sub>	6.95	4.465	0	0	4.68	4.92	3.38	0
	S <sub>3</sub>	5.115	3.45	0	0	5.48	3.89	3.025	0

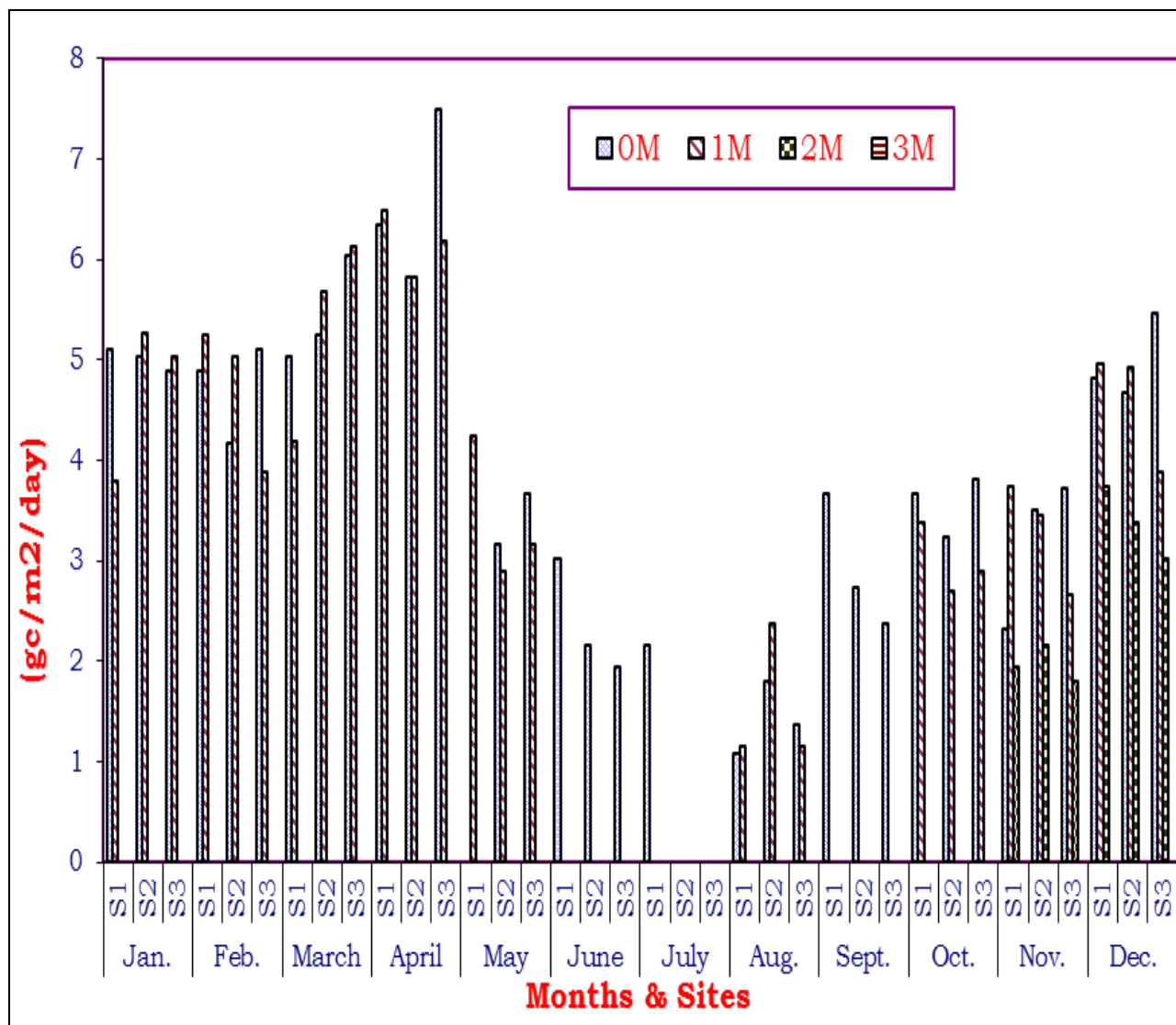


Fig 1: Monthly data of Net Primary Production ( $\text{gc}/\text{m}^2/\text{day}$ ) of Barchar Dam at different sites (year 2013)

Present study revealed that Cyprinidae (carps) were the dominant fish and *catla* was a major contributor among carps. Carps are fast growing fishes and popularly preferred fishes form point of view of their suitability. Following species were noted to be suitable for Barchar dam. *Catla catla*, *Labeo rohita*, *Cirrhinus mrigala*, *Labeo calbasu*, *Barbus tor* and *Cirrhinus reba* etc. The numerical trend of fish production is closely related with abiotic and biotic components of ecosystem. Thus total 33 species of fishes covering 23 genera and 13 families were studied in this dam.

During this study, after compiling the data of fishery department, two peaks of fish production were noted i.e. one during December and other during April. Alikunhi (1950, 1955)<sup>[7]</sup> reported for most of the indigenous fishes, that a concentration of dissolved oxygen between 03 to 05 ppm is quite favorable. During present study data reveals that dissolved oxygen was always within a favourable ranges.

#### 4. Conclusion

Indian fisheries has manifold role in national scenario including production of food, contribution to national income, health, utilization of waste products and land, employment opportunity and recreation and sports. Fish is a valuable

source of food that is rich in proteins. Fish proteins are easily digestible. Apart from being a good source of food, fish also have the significant uses like medicinal use, Industrial use, feed for farm animals, agricultural use, adhesive, shark skin.

#### 5. Acknowledgement

The authors are greatly indebted to Principal of Govt. S.G.S. P.G. College, Sidhi (M.P.) who permitted to carry out this work at the centre.

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