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## Ichthyofaunal Diversity And Socio-Economic Condition Of Fresh Water Reservoir On Sindphana River In Maharashtra State, India

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### Abstract:

River Sindphana which is tributary of River Godavari, in Beed District (Maharashtra, India) in 1987. Which falls 16° 16 N latitude and longitude 73° 26 E. The River Sindphana has been under constant threat of pollution by sewage and industrial wastes, disposal of dead bodies, deforestation, excessive use of fertilizers and pesticides, bathing and water development programmes. The dam reservoir has a catchment area is 3840 sq. km. It is of great Importance for the region because its water is used for human and cattle consumption, It is multipurpose type like irrigation and power production (Hydro Electric Project). As a representative of these 'Majalgaon Dam reservoir' was selected for the limnology studies.

The present study is aimed to investigate some of the important physical and chemical parameters along with the flora and fauna of the reservoir. A total of 31 species of Phytoplanktons, 25 species of Zooplanktons and . The reservoir is very productive. There are several types of fresh water fishes present in the dam. Labeorohita, Cirrhinamrigal, Catlacatla, Cyprinus carpio, Silver carp, Wallago attu, Mystancenbelus armatus, Notopterus chital, Barbusticto, Channastaitus, Mystusseenghala, Mystuscavassius, Eutroplussuratensis, Belonconcala, Chela, Tilapia mosambica, Rohteealfrediana, Gobiustiuris etc. 19 species of fishes were identified during June 2022-May 2023. Hence the present work is an attempt to accumulate information pertaining to various aspects of hydrobiology of standing water bodies from this part of peninsular India.

The most important factor that influences the utilization and development of the fishery resources in the Socio-economic condition of the fisherman.. This caused them to depend upon middle man for the marketing of their producer and naturally the major portion of the profit goes in the pocket of middle man. The fisherman do not have their own net, for they depend upon the other fisherman and in return they give a good portion of their income as hire of the net. The net income of the fisherman is insufficient for his maintenance and of his family.

**Keyword:** Physical and Chemical parameters, Flora and Fish Fauna, Socio-economic condition.

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**Introduction:**

India has a large network of river, canals, lakes and ponds, which contribute more than 30% of the total fish production. Fish form one of the most important group of animals for man and have received his attention from ancient time. Majority of our people suffer from hunger and malnutrition. Fish is an excellent food for man and provides protein, fat and vitamin A and D, which are essential for the health of man. Fish is also provide source of vitamin B, it food rich in protein is specially preferred for containing essentially amino acid such as Lysine and methionine abundantly required for formation of phospholecithine in gray matter of the brain unsaturated fat in fish also reduce the risk of formation of high blood cholesterol. Phosphorus and several minerals are also present in it. They have good test and easily digestible. Besides being a rich source of food, fishery provides job opportunities also. By product of fishes i.e. fish manure, isinglass and several other production of commerce.

Considerable studies on fish diversity from different fresh water bodies of India have been carried out during the last few decades Hamilton Buchanan (1822), Day(1878), Mishra (1962), Jayram (1981) Thomus et.al. (1989), Talwar & Jhingrah (1991), Menon (1992), Rao et.al (1999). Sarkar and Banergee (2000), Mishra et.al.(2003). There are over 19000 reservoirs in India. Covering 3, 15,366 ha. And many more are under construction. (Suguman 2000) Reservoir Fishery in India is also important from social

economic point of view as it has the potential of providing employment to about 2 million people (Khan Et.al.1999). According to sreenivasan (1993) the Maharashtra is endowed with an area of 1,79,430 ha. Under reservoir and the state produces 516 tones of fish of these area the state fisheries corporation was operating in 6,272 ha. Of reservoir and marketing the catches.

The present investigation was under taken to study the aquatic vertebrate animals with reference to fishes from Majalgaon dam reservoir water. It is a second stage of Jayakwadi Project of Nath Sagar. It is irrigation project of Maharashtra state. It is situated in the latitude  $16^{\circ}16^{\prime}N$  and longitude  $73^{\circ}26^{\prime}E$ . It is multipurpose type like irrigation and power production and also fishing purposes (Table No. 1).

**Material and Method:**

The fishes were collected from the Majalgaon dam reservoir with the help of fisherman during the year June 2021 – May 2022. The specimen were preserved in 10% formalin and subsequently identified following work of Lagler (1956) Menon and Talwar (1972), Day (1878), Datta Munshi & Srivastav (1968), Jayram (1981) and Talwar & Jhingran (1991).

**Result and Discussion:**

Fish as constitute economically a very important group of animals. A large number of dams and reservoir has been constructing during the recent year to provide water for irrigation and power

production. These bodies of water offer immense scope for fish culture for successful fish farming in dam and reservoir. Majalgaon dam reservoir is very productive more work has been carried out of fish fauna. The distribution of fish species is quite variable because of geographical and geological condition.

The Eleven species of the fish fauna in this study belonging to four order and six families are given in the table No. 2 among them order Cypriniformes was dominant with eight species to be followed

by the Mastalimbeliformes, Osteoglossiformes, and Ophiocephaliformes each with one species. Valsangkar (1993) recorded 17 indigenous and 5 introduced fish species from Shivaji Sagar reservoir. Sakhare (2001) recorded 23 fish species belonging to 7 orders in Jawalgaon reservoir in Solapur district. Pawar and Madlapure (2002) recorded 13 fish species belonging to 5 order in sivur dam. Ingole (2005) recorded 13 fish species occurrence in the during research work at Majalgaon dam reservoir.

**Table No. 1: Highlight of Majalgaon dam reservoir.**

|                               |  |
|-------------------------------|--|
| Name                          | Majalgaon dam Jaikwadi project Stage – II      |
| Type                          | Multipurpose (Irrigation and Power production) |
| River                         | Sindphana                                      |
| Basin                         | Godavari                                       |
| Location                      | 2 Km. u/s of Majalgaon Dist-Beed (M.S.)        |
| Year of start of Construction | 1977   |
| Year of completion            | 1987   |
| Catchment area                | 3840 Sq.Km.                                    |
| A.V. Rainfall in C.A.         | 800 mm.  |
| Submerged area                | 7813 Ha.                                       |

**Table No. 2: Fish diversity from Majalgaon Dam reservoir**

|                                    |                                      |
|------------------------------------|--------------------------------------|
| <i>Class – Pisces</i>              | <i>Family -3 – Siluridae</i>         |
| <i>Sub-class – Teleostomi</i>      | <i>Species – 8 – Wallagoaltu</i>     |
| <i>Order 1 – Cypriniformes</i>     | <i>Order – 2 – Mastaembeliformes</i> |
| <i>Family 1 – Cyprinidae</i>       | <i>Family 4 – Mastamecembelidae</i>  |
| <i>Speices – 1 – CatlaCatla</i>    | <i>Species 9 – M. armatus</i>        |
| <i>Species 2 – Labeorohita</i>     | <i>Order 3 – Osteoglossiformes</i>   |
| <i>Species 3 – Cirrhinamrigal</i>  | <i>Family 5 – Notopteridae</i>       |
| <i>Species 4 – Cyprinus carpio</i> | <i>Species – 10 – N. chital</i>      |
| <i>Speices 5 – Silver carp</i>     | <i>Order 4 – Ophiocephaliformes</i>  |
| <i>Species 6 – Barbusticto</i>     | <i>Family 6 – Channidae</i>          |
| <i>Family 2 – Bagridae</i>         | <i>Speices – 11 – ChannaStaitus</i>  |
| <i>Species 7 – Mystusseenghala</i> |                                      |

#### **Fishing On Majalgaon Dam Reservoir :**

Commercial fishing was done by the fisherman of the society. Fishing  
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started after monsoon and it was done day as well as night. Hooks and line gear used for fishing of Carnivorous fishes. Drag net,

gill net cast net are used for fishing. The size of the net depends upon the area of fishing and size of the mesh depends upon the size of fish.

Fishing was done with the help of wooden plates, thermocole sheets, tubes and coracle etc. as well as transportation the coracle was made from bamboo splits and covered with polythene sheet. It was light in weight and used in single fisherman. The size of thermocole, wooden sheet varies from 5 to 6 feet in the length and 3 to 4 in breadth.

#### **Fish fauna on Majalgaon dam reservoir:**

The local fish fauna are abundance and distribution of Majalgaon Dam reservoir are as

1. *Labeorohita*
2. *Cirrhinamrigal*
3. *Catlacatla*
4. *Cyprinus carpio*
5. *Silver carp*
6. *Wallago attu*
7. *Mystacembelus armatus*
8. *Notopterus*
- chital
9. *Barbus ticto*
10. *Channa*
11. *Mystus seenghala*
12. *Eutroplus suratensi*
13. *Belon conchila*
14. *Chela*
15. *Tilapia mosambica*
16. *Rohitee alfrediana*
17. *Gobius giuris*

Hydrobiological study and features of the fisheries of Majalgaon Dam reservoir of its self sustained ecosystem is described. Alikhuni (1957) stated that the water alkalinity over 100 ppm are called as productive water body

#### **Co-Operative Society and Marketing of Fish:**

Manik Shah Fish Business Co-operative Society Bhatwadgaon Tq. Majalgaon Dist. Beed. State Maharashtra.  
1 Date of Registration - 15 Dec. 1987. 2. Registration No. - BHR / MGN / RSR / CN / 1053. 3 Total no. of member - 41.

Fisherman themselves catch the fishes and sold them at distance market at Aurangabad, Hyderabad, Mumbai, Gulbarga, Nizamabad. They also sold fishes at local market Majalgaon. Nitrud, Talkhed, Patrud, Takarwan, Rajegaon, Dharur, Wadwani, Telgaon, Georai, Parli, Beed and Pathri. Fishes, after assembling, were sold to the merchant and send them to distance market. While transporting fishes, fishes are packed with ice in bamboo boxes.

#### **Socio-Economic Condition of Fisherman:**

The most important factor that influence the utilization and development of the fishery resources in the socio-economic condition of the fisherman. This caused them to depend upon middle man for the marketing of their producer and naturally the major portion of the profit goes in the pocket of middleman. The fisherman of this society are belong to the casts such as, Bhoai – 90 % Fisherman & Muslims – 10 % fisherman of the fisherman do not have their own net, for it they depend upon the other fisherman and in return they give a good portion of their income as hire of the net. The net income

of the fisherman is insufficient for his maintenance and of his family.

### **Future Scope for Development of Fisheries of Majalgaon Dam Reservoir**

Adequate stocking of fish seed is necessary. They were stocked *C. mrigal*, *Cyprinus carpio*. If fish seed of *Ciprous*, Rohu, *Mrigal* and *Catlacatla* is stocked then it will increase the production. Marketing should be done through the co-operative society only instead marketing through agents. Illegal fishing should be prevented. Mixed fish culture should be adopted such as culture of Indian major carps and exotic carps to increase production. Removal of predatory fishes is necessary. Fisherman should be educated for the development of reservoir fishery.

### **Suggestions for Improvement of Fisheries and Socio-economic Condition of the Fisherman:**

The fisherman community should be tread in modern methods of fish culture and fishing, so that production can be increased of the reservoir. The well equipped fish seed production center highly progressively of fish seed production. They should be a constant cold storage plant to keep the fishes for sell in different seasons. Fisherman should be provided with educational and health facilities, so that their children can be learnt and health of fisherman should be normal. Fisherman should be educated so that they can leave away their addiction.

Illegal fishing should be stopped, so that loss of fish can be checked.

### **Conclusion:**

Productivity of reservoir is depending on physico chemical parameters & biological aspect. Maintain socio-economic condition and Management of reservoir etc.

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