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FISH DIVERSITY OF DONGAR HALDI (MAL) LAKE IN POMBHURNA TAHSIL OF CHANDRAPUR DISTRICT, MAHARASHTRA, INDIA.

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ABSTRACT:
India is one of the mega biodiversity country in the world and occupies the 9th position in terms of freshwater mega biodiversity. Fishes are rich source of food and nutrition. In India, there are 2,500 species of fishes, of which 930 live in freshwater and remaining 1,570 are marine. The Dongar Haldi (Mal) lake is situated in Dongar Haldi (Mal) village in Pombhurna Tahsil of Chandrapur District of Maharashtra. This lake is surrounded by natural forest and hilly terrain. It is 39 Km from Chandrapur. The aquatic weeds of the lake were classified into five different types as free floating, submerged floating, rooted submerged, marginal and emergent weeds. Aquatic weeds are present in places of marshy land and water logged areas throughout the world. The weeds are disturbing to the production of aquatic weeds, is of primary importance for their control and management. Species of macrophytes are of great importance today as far as natural food supply to fish species is concerned. These weeds provide the nutrients and foods to fishes and some weeds are the harmful for the fishes. In this lake, total 5 species of fishes were found at the time of fishing, viz., Catla, Rohu, Mrigal, Cyprinus and Giant Freshwater prawn *Macrobrachium rosenbergii*. Total collection of fishes and prawns is 10 to 15 tons per year. The Dongar Haldi (Mal) lake is suitable for the aquaculture practices. From the present study, it may be concluded that - The Dongar Haldi (Mal) lake exhibit a good fish diversity represented by 5 species of fishes and prawn species. In this lake, aquatic weeds are present in large quantity. They restrict fish movement and interfere with fishing operations.

Keywords:- Fishes, Prawns, Aquatic weeds

INTRODUCTION :

Fish diversity is the number of species and abundances of each species that live in a particular location. The number of species that live in a particular location is called 'Species richness'. Fishes constitutes half of the total number of vertebrates in the world. India is one of the mega biodiversity countries in the world and occupies the ninth position in terms of freshwater mega biodiversity. Fishes are rich source of food and nutrition. In India, there are 2,500 species of fishes of which 930 live in freshwater and 1,570 are marine water. Maharashtra is one of the important aquatic biodiversity hotspots of the country, having been stowed with a large number of water bodies both lotic and lentic. The state boasts a rich fish biodiversity. The distribution of aquatic organisms is influenced by physical environment, chemical quality and biological interactions. Changes in quality of water affects aquatic life. Pollution of water caused by various human activities that also affects on fish diversity. In the last few decades, much attention is being paid to aquaculture as a source of food to feed the growing population of the country. Fishes constitute the most conspicuous component of inland aquatic fauna and rank very high as a source of proteins. Production of fish from water bodies basically depend on right selection of cultivable varieties and control of predatory and weed fishes. The study of fish diversity in reservoir used for fish cultivation becomes an essential tool for better fish production. Fishes are an integral component of lake and reservoir ecosystems. In addition to being a desired resource for users of the lake, they play important roles in energy flows, nutrient cycling and

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maintaining community balances in these ecosystems. The physical, chemical and biological characteristics of a lake or reservoir are major determinants of the type, number and size of fish available. At the same time, fisheries management affects not only on fish and the quality of fishing but also on the whole ecosystem. The introduction of a new species of fish, for example, can have a cascading effect on the abundance of other organisms and, indirect, on the nutrient levels and water quality. Freshwater is a vital resource for each living organism. The maintenance of the health and resilience of natural freshwater ecosystems is vital for human prosperity. The growing human population has made conservation of freshwater fishes is an acute problem around the world. The modern alarming speed at which species disappear has been called 'The planet's sixth mass extinction'. In last century, this was about 112 times higher than expected under natural conditions.

The study area of lake is situated in Dongar Haldi (Mal) village. This lake surrounded by natural forest and hilly terrain Dongar Haldi (Mal) village is in Pombhurna Tahsil in Chandrapur district of Maharashtra, India. Dongar Haldi (Mal) is 39 Km from Chandrapur. Fishing is the greatest simple economic activity depended upon by the communities surrounding the lake and it is perceived to be one of the greatest threats to biodiversity. The removal of large quantity of fishes, approximately 10 to 15 tons of fish per year, might be expected to have a direct impact on the biodiversity of fish in the lake. The productivity of an ecosystem promotes its quality whereby living organisms ate manufactured through interactions of community and environment. Standing crop, rate of removal of resources and rate of production are the measures of the quality of an ecosystem. The lake, however, is vulnerable to pollution and there are currently few efforts being made to conserve its biodiversity. These problems and their effects are increasing and immediate attention is required to assess and control these problems and conserve the biodiversity. The productivity of the fresh water community that determines the fish growth is regulated by the dynamics of its physico-chemical and biotic environment. Fisheries sector in India has come a long way since independence, contributing immensely to the country's protein requirements and also export earnings. It has also been identified as a farming activity that would ensure domestic food security and rural development by the organization all over the world, particularly, in the Asian continent. Freshwater fishery comprising species of carps, catfishes, freshwater prawns. This provides a highly profitable economic enterprise. The traditional practices in the eastern India have taken shape of an industry in the states like Andhra Pradesh and Punjab. The National Freshwater Aquaculture Development Plan provides the base for planning development strategies in the coming years. The fisheries sector is a very important part of the economy of rural region and provides a valuable source of employment.

In the Dongar Haldi (Mal) lake, there are different types of aquatic weeds are present. The aquatic weeds of the lake were classified into five different types such as, free floating, submerged floating, rooted submerged, marginal and emergent weeds. Aquatic weeds are present in the places of marshy land and water logged areas throughout the world. The weeds are disturbing to the production of aquatic weeds is of primary importance for their control and management species of macrophytes, are of great importance today, as far as natural food supply to fish species is concerned.

The main objective of this study was to know the fish diversity of the Dongar Haldi (Mal) lake.

REVIEW OF LITERATURE:

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Review of literature is an early research done by researchers. It enables to avoid the duplication of research work the review of literature is as follows: Paunikar et al., (2012) had studied on ichthyofaunal diversity of Gour river, Jabalpur, Madhya Pradesh, Central India from April 2010 to March 2011. They collected data from three sampling spots, viz. Saliwara village, Near Gour Bridge and Near TFRI Campus, Jabalpur. The total 33 fish species were recorded under 5 orders and 10 families. 16 species of Cypriniformes, 7 species of Siluriformes, 3 species of Sybranchiformes, 6 species of Perciformes and 1 species of Beloniformes have been recorded. Luharia, et. al., (2020) had made the studies on fish diversity in Gawarala and Vijasan lake of Bhadravati, in Chandrapur district of Maharashtra, India, between October, 2013 to September, 2015. They collected a total of 21 species of fishes from 6 different orders were recorded from both lakes. Wavare and Kamdi (2017) was observed the diversity of fish fauna of the Nawargaon lake in Maregaon Taluka in Yavatmal District, Maharashtra, Central India, has been studied from February, 2016 to March, 2017. The four sampling spots were selected. viz., Spot: A, B, C and D of Nawargaon Lake. In this study, the fish diversity is a good indicator for health of aquatic ecosystem. A good piscine diversity represents the balanced ecosystem. Pawar (2009) had made studies on water quality and fish diversity of Sadatpur lake in Ahmednagar District, Maharashtra for a period of one year beginning from January 2005 to December, 2005 and were investigated to assess the suitability of this lake for fish and fisheries practices. All the physico-chemical parameters determined and revealed that, there are fluctuations in water temperature, pH, dissolved oxygen, alkalinity and nitrite, were within the desirable limits. Chloride and Sulphate were lower where as phosphate was higher than the desirable limits. Altogether 24 fishes species, belonging to 17 genera and 2 orders were found to be present in the lake. Among fish species family Cyprinidae was dominated the lake. Sweke et al., (2013) had studied on comparison of fish diversity and abundance of lake Tanganyika in a protected area (Mahale Mountains National Park) and unprotected areas surrounding to it. The data were collected in the near shore zone at 5 m and 10 m depths using stationary visual census technique. The protected area recorded higher fish richness and abundance than unprotected areas ($P<0.05$). It was concluded that, the protected area is effective in conserving the fish diversity and abundance of the lake. Solanke and Dabhade (2017) was investigated total 14 species of fishes belonging to 4 orders and 6 families were reported in Upper Morna Reservoir, situated at Medshi village in Washim district. In all, 4 orders of Cypriniformes were found in most dominant followed by perciformes and others. In all fishes, three species was found dominant due to stocking of seed of this fishes intensely so far as the records of fish fauna of other water bodies. Total 14 fishes are recorded. Gorghate et. al., (2021) was observed the diversity and conservation status of fish fauna in Chinchtola lake in Gondia district of Maharashtra, India. This work was carried out for two years from October, 2017 to September, 2019 at Chichtola lake. The present finding showed that, the lake inhabits of 31 fish species from 13 families. Cyprinidae was the most dominant family.

Telkhade and Jambhule (2017) was studied the fish diversity of Lohara lake, Lohara, in Chandrapur district of Maharashtra, India. The present study was carried out for the study of diversity of fishes in Lohara lake during 2012-13. This lake is 1 km away from the Lohara village. 30 species of fishes belonging to 5 orders and 10 families were observed. Nath and Deka (2012) had made a study on fish diversity, conservation status and anthropogenic stress of Chandubi tectonic lake, Assam, India. This study revealed,

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63 species of fishes which indicate the high fish diversity. It acts as a breeding ground of large number of major carps, minor carps, air breathing fishes and catfishes. Mamilov et al. (2021) had made studies on past, current and future of fish diversity in the Alakol lakes in Central Asia: Kazakhstan. According to him, habitat change leads to fish fauna homogenization as a result of rare species extinction and alien penetratation. Growing human population and poor water management make the future of the indigenous fishes unpredictable. Londhe and Sathe (2015) was studied the fish faunal diversity and occurrence from lakes of Kolhapur district of Maharashtra. During the study, 28 species were recorded, belonging to 3 orders and 17 genera. During their investigation, it was revealed that, Cypriniformes was dominant at all lakes of Kolhapur district. All the species recorded were found throughout the year. Tijare and Shastrakar (2016) had made study of ichthyofaunal diversity of Asola-Mendha lake in Sindewahi Tahsil of Chandrapur district, Maharashtra. Their investigation reveals an inventory of ichthyofaunal diversity which consists of 32 species from 24 genera and 12 families belonging to 7 orders.

MATERIAL AND METHODS :

The freshwater perennial lake under study is located in Dongar Haldi (Mal) village in Pombhurna Tahsil of Chandrapur district in Maharashtra state, India. It is located between 19.91 latitude and 79.58 longitudes. Total water spread area of this freshwater village level lake is 36364.18 m2 and is about 194 meters above the sea level. During summer, its capacity decreases to about 10 feet deep water.

The fish fauna is an important aspect of fishery potential of a water body. The collection of fishes from lake was made with the help of local fishermen. The fishermen used the gill nets for collecting the fishes. In this lake, the fishes are collected throughout the year (Figures 1 and 2).

RESULT :

In the Dongar Haldi (Mal) lake, following fish fauna was observed (Table 1).

DISCUSSION:

This fishes are the common carps in India. This species generally culture in most of the lakes, rivers, reservoirs and ponds. In this lake, the various types of aquatic weeds are present. The aquatic macrophytes plays important role in aquatic ecosystem and thus, they maintain aquatic biodiversity. The aquatic weeds show their importance by providing food and habitat for aquatic invertebrates, zooplankton, fishes, and aquatic wild life. Paunikar (2012) had studied on ichthyofaunal diversity of Gour River, Jabalpur, Madhya Pradesh, Central India from April, 2010 to March, 2011. They collected samples from three sampling spots, viz., Saliwara village, Near Gour Bridge and Near TFRI Campus, Jabalpur. Total 33 fish species were recorded under 5 orders and 10 families. 16 species of Cypriniformes, 7 species of Siluriformes, 3 species of Sybranchiformes, 6 species of Perciformes and 1 species of Beloniformes have been recorded. Luharia, et. al., (2020) had studied on fish diversity in Gavarala and Vijasan lake of Bhadravati in Chandrapur district, Maharashtra, India from October, 2013 to September, 2015. They collected a total of 21 species of fishes belonging to 6 different orders in both lakes.

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Fish diversity depends upon the biotic and abiotic factors and age of water body, mean depth, fluctuation of water levels, etc. In the present study of Dongar Haldi (Mal) lake, the total 5 species were found at the time of fishing, viz. Catla, Rohu, Mrigal, Cyprinus and Giant freshwater prawn Macrobrachium rosenbergii. The annual turnover of this lake is 10 to 15 tones.

CONCLUSION :

From the present study, it may be concluded that -

1.The Dongar Haldi (Mal) lake exhibit a good fish diversity represented by 5 species of fishes belonging to 1 family and 1 order.

2.To maintained the richness of aquatic ecosystem continuous monitoring of lake is needed.

3.The Dongar Haldi (Mal) lake hosts a number of freshwater fish species.

4.In this lake, more amount of aquatic weeds is present. They restrict fish movement and interfere with fishing operations.

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Table 1: Fish fauna of Dongar Haldi lake.

Sr. No.	Common name	Local name	Scientific name
1	Catla	Catla	*Catla catla*
2	Rohu	Rohu	*Labeo rohita*
3	Mrigal	Mrigal	*Cirrhinus mrigala*
4	Grass carp	Cyprinus	*Cyprinus carpio*
5	Prawn	Zinga	*Macrobracium rosenbergii*

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Figure 1. Fishing at Dongar Haldi (Mal) lake.

Figure 2. Collected fishes from Dongar Haldi (Mal) lake.

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