



STUDY OF FRESH WATER FISH DIVERSITY OF TAPI RIVER TQ. SHIRPUR, DIST. DHULE (M.S.) INDIA.

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ABSTRACT:

Tapi River is perennial water resource for human consumption and also helpful for the agriculture and fisheries in Tapi River Taluka Shirpur, Dist. Dhule. Keeping a view that Fish diversity of Tapi River is correlated to aquatic ecosystem, it was observed that the Fish diversity belongs to 04 orders 04 families 10 genus and 10 species while Cypriniformes family is dominant over other families. Finally it may be concluded that Tapi River Tq. Shirpur, Dist. Dhule is rich of fish diversity.

Keywords:- Fish diversity, Tapi River, Fresh water fish.

INTRODUCTION :

Fish constitutes half of the total number of vertebrates in the world. They live in almost all conceivable aquatic habitats; 21,723 living species of fish have been recorded out of 39,900 species of vertebrates out of these 8,411 are freshwater species and 11,650 are marine India is one of the mega biodiversity countries in the world and occupies the ninth position in terms of freshwater mega biodiversity India there are 2,500 species of fishes of which 930 live in freshwater and 1,570 are marine. Ichthyodiversity refers to variety of fish species; depending on context and scale, it could refer to alleles or genotypes within fish population to species of life forms within a fish community and to species or life forms across aqua regimes. (Rajani. S. Amrawkar *et al.* 2019).

The species diversity of an ecosystem is often related to the amount of living, nonliving and organic matter present. In the field of ichthyology there is valuable were given an incision in their abdomen and preserved. As per economic importance and scope of fish and fisheries especially in Maharashtra, but it is natural to study the distribution and availability

of fish from fresh water. Present investigation was undertaken to study the fish diversity from Sanjul Lake is the first effort in this direction. Various indigenous and commercial fishes of importance were found in this area. Cyprinid fishes are one of the most important groups of vertebrates for man and influencing his life in various ways. The nutritive and medicinal value of fish has been recognized from ancient time to recent era. (Gedam Ajit K, *et al.* 2019).

It is important to have an adequate knowledge of the constituent of biota especially for conservation and management of the pond. Fishes are the major nutritious food source for human population. Different fishes have different nutritional value because of their various habitats and food selection. The study of fish and their stability is important because fish population of any given aquatic habitat can vary significantly from year to year. Fishes play an important role, as they are not only useful for food and recreation, but also act as a tool for biological control by feeding upon the planktonic population and aquatic vegetation in any aquatic ecosystem. Fish constitutes half of the



total number of vertebrates in the world. (Phulwade Durgesh *et al.* (2020).

Fisheries are an important sector in India contributing to about 6.3% to global fish production. Indian fisheries sector contributes around 1.1% of total GDP and 5.15% of agriculture GDP of country. With third place among fish producing countries in the world, India recorded total fish production of 0.76 million metric tons 2016 through involvement of 15 million people in different fishery activities for their livelihood and revenue generations. In India, Maharashtra is one of the important states for fish production and natural water resources and there is great scope for developing fisheries in this state. Fish diversity is declining rapidly each day due to unending human stress and pollution. Study of biodiversity is not only wealth of world but it is some serious issues in food chain also. Thus, there is an urgent need for proper investigation and documentation of this fish diversity in order to develop a freshwater fish diversity information systems regarding their habitat. India is one of the mega biodiversity countries in the world and occupies the ninth position in terms of freshwater mega biodiversity (Andhale A.V., *et al* 2021, Phulwade Durgesh *et al.* 2020)

MATERIALS AND METHODS:

Fishes were collected from Tapi River Tq. Shirpur, Dhule (M.S). India with the help of local fishermen using different type of nets namely gill nets, cast nets, dragnets. Immediately photographs were taken with help of digital camera. Fishes brought to laboratory were preserved in 10% formalin solution in separate specimen jar according to the size of species. Small fishes were directly placed in the 10% formalin solution. While large fishes were given an incision in their abdomen and preserved. The Meristic and morphometric characters measured and fishes were identified up to the species level,

with the help of standard keys and books (Andhale A.V., *et al* 2021)

RESULTS:

In the present fish diversity study, species of 10 different genera belonging to 04 families and 04 orders recorded from the Tapi River Tq. Shirpur, Dhule (M.S.) India. The members of Order Cypriniformes were dominated by 05 species followed by Perciformes with 03 species, Characiformes 01 Spices and Siluriformes 02 Species, with 10 species was dominant group in the assemblage composition in which *Catla-cattla*, *Lebeo rohita*, *Cyprinus carpio*, *Cirrhinus mrigala* and *Hypothalmichthys molitrix* were found most abundant. Fishing operations were carried out for Twelve months with low in monsoon compared to high in post monsoon. It is suggested that the fishery authorities should investigate and practice the proper exploitation and management of this spot fishery resources according to ecological principles. It was concluded that further studies may be done to develop techniques for fish culturing. The use of illegal methods to catch fish should be banned in this area to prevent further depletion of freshwater fish resources. The fisherman's should make aware about fishing, scientific training and facilities should be made available to the fish farmers fishing of the spawn, larval fish. The work will provide future strategies for development and fish fauna conservation at Tapi River Tq. Shirpur, Dhule (M.S.) India.

The Identification of fishes is given Photoplate in that Fish *Labeo rohita* (Hamilton, 1822). The body is bluish black along the back, becoming reddish black along the side and silvery beneath scales are with buff, orange or reddish center and dark margin. Fins are black. Caudal fin is deeply forked. The lateral line is complete. Mouth small and inferior, lips thick and fringed each lip with a distinct inner fold snout depressed and projecting beyond mouth. Common name is Rohu, Tambdamassa.

Fish *Catla catla* (Hamilton, 1822). The body colour is grayish above and silvery on the lateral and ventral side fins are blackish in colour. Scales are of the moderate size. Caudal fin is forked. Pectoral fin is located slightly behind the ventral fin. Barbels are absent. Body is deep and stout. Mouth is wide and the lower jaw is prominent. Lateral line is completed and commences from the upper margin of the gill cover. Common name is Catla, Tampra.

Fish *Cirrhinus mrigala* (Hamilton, 1822). The body colour is silvery, dark gray along the back some time with coppery ting. Streamlined body, snout is blunt. Mouth broad, upper lip complete, lower lip indistinct. Single pair of barbels is present. Dorsal fin as high as body or length of head. Pectoral fin short, not reaching pelvic fin. Caudal fin is deeply forked. Lateral line is complete. Common name is Mirgal, Naim.

Fish *Oreochromis mossambicus* (Peters, 1852). This fish Body is short, more or less elongate abdomen rounded. Head compressed with concave upper profile. Mouth is terminal large at least width of head or often nearly as wide head. Dorsal fin inserted above base of pectoral with 15 or 16 spines a little longer than the dorsal. Anal fin with 3 spines third spines a little longer than the dorsal. Caudal fin rounded may be truncate in the young. Scales are cycloid. Common name is Tilapi. (C.J. Hiware, *et al*, 2015).

Fish *Cyprinus carpio* (Linn., 1758). This fish Body compressed and stouth head is triangular. Snout obtusely rounded mouth oblique protrusible and small lips fleshy. Barbels two pairs rostral as maxillary. Dorsal fin inserted at mid-point of the length dorsal spine stout serrated. Anal fin trapezoidal in shape. Pectoral fin large. Caudal fin deeply emarginated. Scales are large, lateral line scales 30 to 40. Common name is Cyprinus, kobada. (C.J. Hiware, *et al*, 2015).

Fish *Hypothalamichtys molitrix* (Valenciennes, 1844). This fish Body is stout, Compressed, Abdomen strongly compressed with a sharp keel from breast to vent. Head moderate snout bluntly round. Mouth anterior, large, wide, cleft not extending to anterior margin of eye. Upper jaw a little protruded upward a little longer than the lower. Barbels are absent. Dorsal fin inserted behind pelvic fins or above lip of pectorals fins with 10 rays. Caudal fin is forked. Common name is Silver carp. (C.J. Hiware, *et al*, 2015).

Fish *Piaractus brachypomus* (Cuvier, 1818). This Fish head is deep and laterally compressed, with silvery sides (becoming darker approaching the dorsum) and red coloration on the Mouth to belly, mouth is broad, and with a terminal mouth. The mouth is surrounded by strong upper and lower jaw which consists of numerous of teeth. The buccal cavity of *Piaractus brachypomus* is observed to be wide. The buccal cavity leads into chamber called pharynx. The floor of the buccal cavity is formed by the branchial arches. Body is fish Common name is Rupchand. (Reenamole, G.R. and George D'cruz F. 2015).

Fish *Pangasius pangasius* (Hamilton, 1822). This fish Body is silvery, darkest suprioly shot with purple on sides, cheeks and under the surface of the head is golden. Caudal is forked, lobes not sharply pointed. Pectoral spine is serrated, strong as long as the dorsal spine. Body is elongated and compressed, head is slightly granulated above. Eyes are situated in the anterior half of the head. Barbels are four maxillary ones extending to the base of the pectoral fin. Common name is Pangsa, Pankaj, Parisasi. (C.J. Hiware, *et al*, 2015).

Fish *Channa punctatus* (Bloch, 1793). This fish body is generally greenish gray becoming yellow below several bands pass from the dorsum of the body downwards to the middle of the sides fins are spotted. Head resembles to

that of snakes having large shield like scales above. Mouth is large and protractile. Eyes are lateral line in position. Lower jaws is a longer and 3-6 canine behind a row of villiform teeth. Caudal fin is rounded. Common name is Dhok, Dok. (C.J. Hiware, *et al*, 2015).

Fish *Channa striatus* (Bloch, 1793). This fish body is elongated, subcylindrical anteriorly and compressed posteriorly. Mouth is large and protractile. Head resembles to that of snakes large having shield like scales above. Eyes are lateral position. Lower jaws is a longer and 3-6 canine behind a row of villiform teeth. Caudal fin rounded. Common name is Maral, sohr, dakhu, mural, morrul. (C.J. Hiware, *et al*, 2015).

DISCUSSION:

Fishing practices are carried out throughout the year. The average catch is more in winter and summer as compared to rainy season (Ubarhande S.B, *et al* 2011). Fishing operations were carried out for nine months with low in monsoon compared to high in post monsoon (S.V. Rankhamb, 2011). Scientific fishing standard and fishing quotas are to be worked out; this will play an important role in protection of the reservoir biodiversity. Thus it is duty of every individual to play an important role to conserve biodiversity at this place and handover the resources in healthy conditions to the future generations (S.E. Shinde,2009).

Fishing operations were carried out for twelve months with low in monsoon compared to high in post monsoon. It is suggested that the fishery authorities should investigate and practice the proper exploitation and management of this spot fishery resources according to ecological principles. Thus it is duty of every individual to play an important role to conserve biodiversity at this place and handover the resources in healthy conditions to the future generations. The work will provide future strategies for development and fish fauna conservation at Panzara Lake, Dhule (M.S). To

maintain Ichthyodiversity has importance as it is not always possible to identify. Diversity of individual species critical to sustain aquatic ecosystem. It was concluded that further studies may be done to develop techniques for fish culturing (Phulwade Durgesh N., *et al* 2020, Gaikwad D.M., *et al*, 2021).

It is suggested that the fishery authorities should investigate and practice the proper exploitation and management of this spot fishery resources according to ecological principles. It was concluded that further studies may be done to develop techniques for fish culturing. The use of illegal methods to catch fish should be banned in this area to prevent further depletion of freshwater fish resources. The fisherman's should make aware about fishing, scientific training and facilities should be made available to the fish farmers fishing of the spawn, larval fish (Andhale A.V., *et al* 2021).

Studied the ichthyofaunal biodiversity of Girna Dam and he was recorded 24 species that the ichthyofauna belong to 05 order 11 families, 18 genus. The members of order Cypriniformes were dominated by 13 species followed by Perciformes with 05 species, Siluriformes with 03 species, Osteoglossiformes, Parapsilorhynchidae and Scorpaeniformes with 01 species each. The fish fauna of River Girna was collected and identified in the present study. A total of 35 fish species belongs to 08 orders, 27 genera of 17 families were recorded. Order Cypriniformes was most dominant group represented by 20 (57.14) species followed by orders Perciformes with 06 (17.14) species. Siluriformes with 03 (8.57) species, Synbranchiformes 02 (5.71) species, Beloniformes 01 (2.85) species, Synodontidae 01 (2.85) species, Scorpaeniformes 01 (2.85) species and Osteoglossiformes 01 (2.85) species. Thus the Girna River has good potential for fish fauna. Out of 35 fish species 29 have least concern status, 01 are near threatened, 02 are

Vulnerable, 02 are not evaluated and one is data deficient. This is considered the first study on the ichthyofaunal diversity of Girna River. The rivers, streams, reservoirs or ponds of Nandurbar district lays in the northwest region of Maharashtra state. The district is transverse by the river Tapi and its principal tributaries, viz., the Gomai, the Vir, the Rangavali, the Daheli and the Shivan River etc. The survey was made from nine collection centers spread over the entire district. In present study of 83 specimens observed that the ichthyofauna belongs to 6 orders, 11 families, 24 genus and 32 species, were Cypriniformes order is dominant with 19 (59.40%) species followed by Perciformes and Siluriformes with 05 (15.60%) species, Beloniformes, Clupeiformes and Osteoglossiformes contribute 01 (3.10%) species each. (Andhale A.V., *et al* 2021)

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Table 1: The Fresh Water Fish diversity of Tapi River Tq. Shirpur, Dist. Dhule (M.S.)

Order	Family	Scientific Name	Common Name	Groups of food fish
Cypriniformes	Cyprinidae	<i>Labeo-rohita</i> <i>Catla-catla</i> <i>Cirrhinus mrigala</i> <i>Cyprinus carpio</i> <i>Hypothalmichthys molitrix</i>	Rohu Catla Mrigala Common carp Silver carp	Carps Carps Carps Carps Food fish
Perciformes	Channidae	<i>Oreochromis mossambica</i> <i>Channa punctatus</i> <i>Channa striata</i>	Tilapia Spotted snake head Spotted snake head	Live fish Live fish Food fish
Characiformes	Serrasalminidae	<i>Piaractus brachypomus</i>	Rupchanda	Food fish
Siluriformes	Pangasiidae	<i>Pangasius pangasius</i>	Surmai	Food fish

