



Fish Diversity of Nagad Dam, Taluka- Kannad, Dist. Aurangabad, Maharashtra, India.

Dr. A. D. Shelke.

P.G. and Research Department of Zoology, B.P. Arts, Science and Commerce College, Chalisgaon Dist- Jalgaon, KBC. North Maharashtra University, Jalgaon, Maharashtra, India

Abstract: The aim of the present study was to report the diversity of fish species of Nagad Dam. The present study was carried out during August 2022 to February 2023. During the study work, fishes were collected and identified. In the present study a total 20 fish species were recorded which belong to 04 order 08 families, 15 genus and 20 species, were Cyprinidae 12 (60%) family was dominant followed by Channidae 02 (11.11%), Nandidae, Claridae, Bagridae, Belonidae, Mastacembelidae, and Notopteridae 01 (5.15%) species each.

IndexTerms: Fish diversity, Nagad Dam, Aurangabad, Maharashtra, India.

I. Introduction

In general, biodiversity conservation has multiple effects on economics, culture, aesthetics, well-being, and sustainability (Hiddink *et al.*, 2008). India contributes about 7.7% of global fish diversity, of which 1,668 species are marine and 1,027 are freshwater (Chandra *et al.*, 2017; Froese & Pauly 2019). Freshwater fish diversity is under great stress from anthropogenic activities that cause significant ecological changes (Jellyman and Harding, 2012). As freshwater fish species are considered more vulnerable to human activities (pollution, habitat alteration, poaching) than terrestrial and marine species, protection and conservation measures need to be implemented (Basooma *et al.*, 2020).

Knowledge of fish diversity is essential to adopt proper conservation strategies. Accurate identification of fish is the main task of the taxonomist in order to develop appropriate conservation management. Each fish species has individual genetic distances depending on environmental stress and water quality that play an important role in its small morphometric variations. Many species have been considered cryptic, meaning they are morphologically indistinguishable, so their status remains debatable (Darshan *et al.*, 2010).

Many workers reported the Biodiversity and Distribution of fishes found in freshwater bodies of various parts of the state Maharashtra India. (Shelke, 2018) studied the fish fauna of the Girna River and recorded 35 species, that the ichthyofauna belongs to 08 orders of 17 families, 30 genera. The most dominant group was the order Cypriniformes represented by 20 species followed by the order Perciformes with 06 species. Siluriformes with 03 species, Synbranchiformes 02 species, Beloniformes 01 species, Synodontidae 01 species, Scorpaeniformes 01 species and Osteoglossiformes 01 species. (Sharma, 2018) studied the fish fauna of the Gobind Sagar Dam, one of the highest gravity dams built on the Sutlej River in Himachal Pradesh. They documented 46 species belonging to 27 genera, 08 families and 05 orders.

Freshwater reservoirs are good source of fish and it is protein food source to peoples of rural areas, so it's necessary to generate the fish diversity data, hence in the present work, an attempt has been made to report the fish diversity of Nagad Dam. It is the first fish diversity report of this Dam.

II. Materials and method

Collection of fish species.

The present study was based on the field visit at Nagad Dam. This study was conducted during August 2022 to February 2023 and fish were collected from Nagad dam with the help of local fishermen using different types of nets namely gill nets, cast nets, dragnets nets and Bharjal. Photographs were immediately taken using a digital camera before being stored for identification.

Protection of fish species.

Fish were brought to the laboratory and fixed in 10% formalin solution in separate containers according to species size.

Labeling of fish species.

Collected and fixed fish were marked with serial numbers and the date of collection. The common local name of the fish used in the area was marked on each container of the fish.

Laboratory work.

Various morphometric measurements of fish were performed with a ruler and vernier caliper. Various instruments used in laboratory work are light microscope, dissecting microscope, magnifying glass, counting needle, forceps.

Identification of fish species

Species identification was mainly based on the color pattern, specific spots or marks on the body surface, body shape, structure of different fins, etc. Fish identification was based on fresh specimens. Fish were identified using standard taxonomic keys viz. Fishes of India, ITIS (Integrated Taxonomic Information System. Fish Base (<http://fishbase.org>) and other reference books Day (1878), Jayaram (2010), and Talwar and Jhingran (2001) Collected fish were identified to species level.

III. STUDY AREA AND SAMPLING SITE

Nagad Dam is an earthen dam built across the Gadad River near Nagad Village in Kannada Taluka of Aurangabad District in Maharashtra, India. (Coordinates: 20°27'34"N 75°10'38"E).

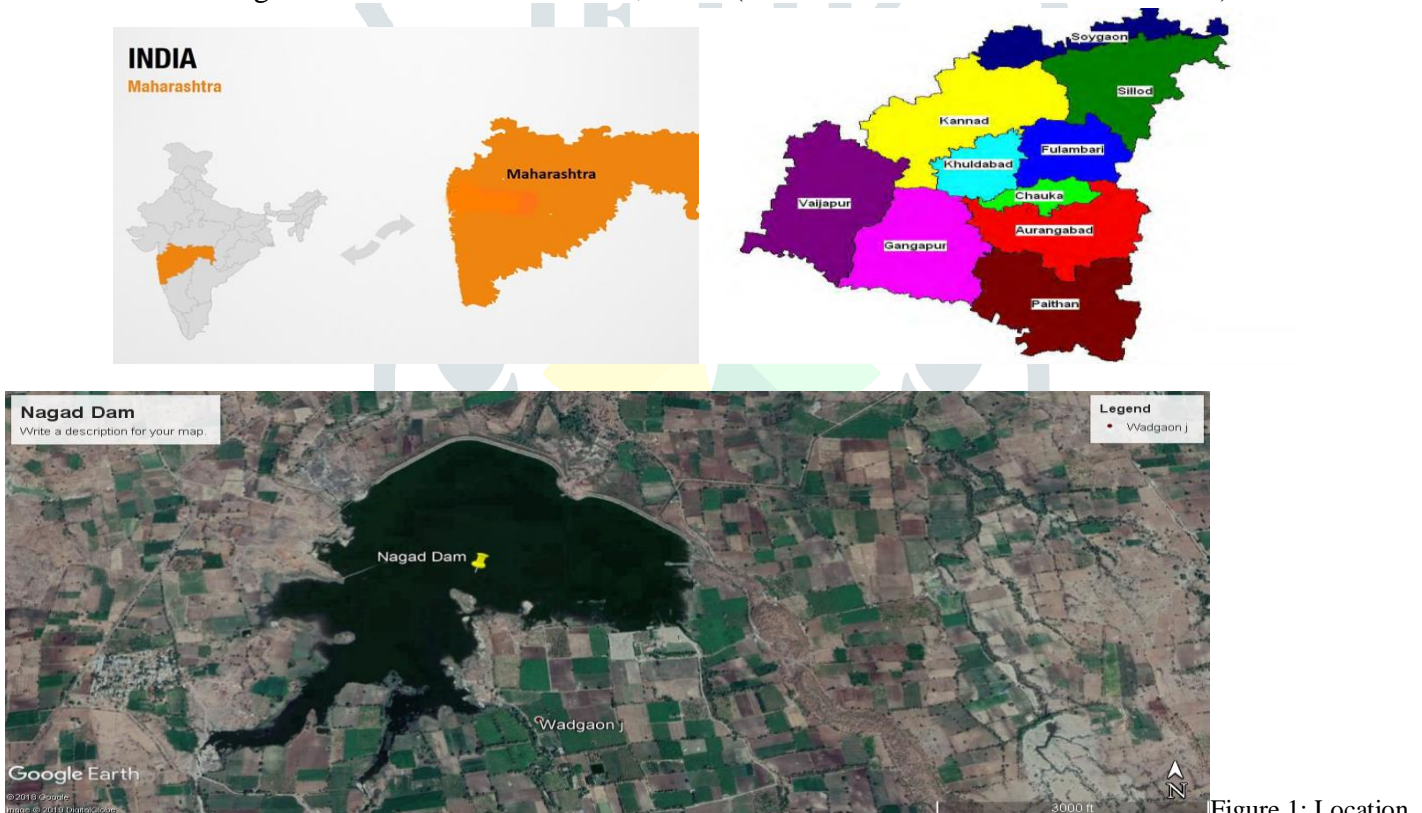


Figure 1: Location

Maps and Satellite Image of Nagad Dam, Taluka-Kannad, Dist. Aurangabad, Maharashtra, India.

IV. OBSERVATION

Table 1. Fish diversity of Nagad Dam, Taluka-Kannad, Dist. Aurangabad, Maharashtra, India.

Se. no.	Order	Family	Scientific name	Common name	Abundance	IUCN status
1.	Cypriniformes	Cyprinidae	<i>Labeo boggut</i> (Skyles, 1839)	Ger	M	LC
2.			<i>Labeo rohita</i> (Ham., 1822)	Rohu	C	LC
3.			<i>Labeo bata</i> (Ham., 1822)	Bata	M	LC

4.			<i>Hypophthalmichthys nobilis</i> (Richardson 1845).	Bighead carp	R	DD
5.			<i>Cyprinus carpio</i> (Linn., 1758)	Common carp	C	LC
6.			<i>Labeo bata</i> (Ham., 1822)	Bata	M	LC
7.			<i>Amblypharyngodon mola</i> (Ham., 1822)	Dhawai	R	LC
8.			<i>Cirrhinus mrigala</i> (Ham.,1822)	Mrigal	A	LC
9..			<i>Catla Catla</i> (Ham., 1822)	Catla	A	LC
10.			<i>Puntius stigma</i> (Valenciennes, 1844)	Pothi	M	LC
11			<i>Puntius conchoni</i> (Hamilton 1822)	Gulabi Khavali	M	LC
12.			<i>Rasbora daniconius</i> (Hamilton, 1822)	Selnder Barb	R	LC
13.	Perciformes	Nandidae	<i>Nandus nandus</i> (Hamilton 1822)	Mottled Nandus	M	VU
14.		Channidae	<i>Channa punctata</i> (Bloch,1793)	Snake head	R	LC
15.			<i>Channa striata</i> (Bloch, 1793)	Snake head	R	LC
16.		Claridae	<i>Clarias batrachus</i> (Linnaeus 1758)	Magur	R	LC
17.		Bagridae	<i>Macrones seenghala</i> (Sykes 1839)	Shingta	R	LC
18.	Beloniformes	Belonidae	<i>Xenentodon cancila</i> (F. Hamilton, 1822)	Gar	R	LC
19.		Mastacembelidae	<i>Mastacembelus favus</i> (Hora, 1924)	Vam	R	LC
20.	Osteoglossiformes	Notopteridae	<i>Notopterus notopterus</i> (Pallas 1769)	Feather back	M	LC
A: Abundant; C: Common; M: Moderate; R: Rare. LC: Least Concern; NE: Not Evaluated; VU: Vulnerable; NT: Near Threatened; DD: Data Deficient.						

Fish Photoplate

*Crrhinus mrigala.**Hypophthalmichthys nobilis.**Catla Catla.**Puntius stigma**Labeo rohita**Labeo boggut.**Cyprinus carpio**Labeo bata**Channa striata.**Macrones seenghala**Clarius batrachus**Amblypharyngodon mola.**Mastacembelus favus**Notopterus notopterus**Nandus nandus**Rasbora daniconius**Xenentodon cancila**Channa punctata***V. RESULTS AND DISCUSSION**

A total of 20 species of fish belonging to 04 families of 08 orders, 15 genera and 20 species were recorded in this study, with family Cyprinidae being dominant 12 (60%) followed by Channidae 02 (11.11%), Nandidae, Clariidae, Bagridae, Belonidae, Mastacembelidae and Notopteridae 01 (5.15%) species each. (Table-1).

In the present study found that this dam water provides good environment to the freshwater fish. But in this dam the local species are decreasing from last few years. Indiscriminate use of pesticides specially weedicides used by the farmers on their crop which run off comes and makes freshwater unfavorable for growth and reproduction of fish. In the coming era to maintain the population of native species will be challenging. In each and every year large amount of carps seed are released in to the freshwater reservoirs for commercial fish production which creates competition for the local species. Local species may be unable to compete with the carps, like *Labeo rohita*, *Catla Catla*, *Cirrhinus mrigala* and *Cyprinus carpio* which may be one of the reasons of decreasing the in local fish species population.

Dipak V. Muley *et al.*; (2015) studied of endemic and threatened fish species diversity and its assemblage structure from Northern Western Ghats, Maharashtra, India and recorded total 23 species belong 7 families and 19 genera. (Shelke, 2016) studied the ichthyofaunal biodiversity of Girna Dam and 24 species were recorded that the ichthyofauna belongs to 05 orders of 11 families, 18 genera. Among the representatives of the Cypriniformes order, 13 species dominated followed by Perciformes with 05 species, Siluriformes with 03 species, Osteoglossiformes, Parapsilorhynchidae and Scorpaeniformes with 01 species. (Kalbande *et al.*, 2007) noticed 29 fish species from Rawanwadi Lake in Bhandara district. (Thirumala *et al.*, 2011) They reported 33 fish species in which the Cyprinidae family was dominant with 18 fish species from Bhadra reservoir in Karnataka, India.

VI. CONCLUSION:

Present work shows good availability of fish species. This dam water body provides good environment for fishes. In the present study a total 20 fish species were recorded which belong to 04 order 08 families, 15 genus and 20 species. Almost all local species population is decreasing, one of them *Labeo boggut* (*Ger*) its population decreased greatly since last few years. It was one of the species which were dominated in this dam but this species may be unable to compete with the carps, like *Labeo rohita*, *Catla Catla*, *Cirrhinus mrigala* and *Cyprinus carpio* which seeds are released every year in the dam for commercial fish production. Its needs to conserve the local species. But in the era of hybrid food, we may be loss our local and native fish species and its lead to loss of diversity.

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VIII. REFFERENCES

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