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## Study on ichthyofauna of Chenugonipally Peddacheruvu tank in Mahabubnagar district, Telangana, India

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### Abstract

The survey was undertaken for studying the ichthyofauna in the Chenugonipally Peddacheruvu tank of Mahabubnagar District, Telangana state in India from July 2014 to June 2015. The survey was mainly focused on Ichthyofauna and its abundance. A total of 24 species of fishes belonging to 4 orders, 9 families and 18 genera were recorded during the study. Cyprinidae was mostly dominating group represented by 10 species. Bagridae, Channidae and Cichlidae with 3 species each; Siluridae, Clariidae, Ambassidae, Gobiidae and Notopteridae was represented by 1 species each. This is first study on the fish diversity of this irrigation tank and would help in explore the fish fauna of Peddacheruvu tank.

**Keywords:** Mahabubnagar District, Chenugonipally Peddacheruvu tank, Ichthyofauna.

### 1. Introduction

Irrigation tanks are one of the important inland fisheries resources in India besides providing agricultural water. The Mahabubnagar district has rich fish fauna and there is need to contemplate measures to protect the genetic resources. The main threat for the decline of various fish fauna may be due to indiscriminate fishing of juvenile, entry of alien species and destruction of natural environment further deteriorating the situation and water pollution. Mahabubnagar is the largest district in Telangana state of India in terms of the spread, with geographical area of 18,432 Sq. Km and about 180 Km away from the state capital Hyderabad city. About 6200 irrigational tanks exist in the district. These tanks are primarily used for agriculture and pisciculture is the secondary activity.

Studies have been made on Ichthyofauna of various freshwater bodies in India during the last few decades <sup>[1, 2, 3]</sup>. Studied fish and fisheries of Derala Tank, District Nanded in Maharashtra <sup>[4]</sup>. And also studied ichthyofaunal diversity of Koilsagar reservoir <sup>[5]</sup>, Ramanpad and Chandrasagar reservoirs in Mahabubnagar District, Telangana <sup>[6]</sup>. As far as canal water fed irrigation tanks are concerned poor attention has been paid towards systematic investigation on diversity of fish fauna in the district. So it is felt that there is a need to generate information on diversity of fishes from Chenugonipally Peddacheruvu tank. Hence, the present investigation was undertaken to prepare a check list of fishes from canal fed water Peddacheruvu tank besides cultured carp species.

### 2. Materials and methods

Chenugonipally Peddacheruvu tank is one of the irrigation tanks in the district, about 90 Km away from the district headquarters and 180 Km away from the state capital Hyderabad. It is a small size tank, located between 16.23° N latitude and 77.8° E longitudes in Gadwal Mandal (Tehsil) of Mahabubnagar district in Telangana state. It is adjacent to the Gadwal Mandal headquarters. The salient features of Chenugonipally Peddacheruvu tank is furnished in Table 1.

**Table 1:** Salient features of Chenugonipally Peddacheruvu tank in Mahabubnagar District.

Sl. No.	Attribute	Value
1	Location of the tank	Longitude : 77.8° E Latitude : 16.23° N
2	Water Spread Area at FTL	16 Ha.
3	Water level (Avg.)	3-5 feet
4	Water Source	Jurala Project Right canal + Sewage water
5	Seasonality of tank	Perennial
6	Purpose	Irrigation

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Peddacheruvu tank of Chenugonipally village, Gadwal mandal was selected for the study in the district which receives water from the Jurala Project right canal and also receives sewage water directly from the Gadwal town (Fig. 1 - 3). It is a perennial tank and the fishermen stocks advanced size carp fish seed every year in the month of July or August.

**Study Area:** Present work has been conducted on 2 sampling sites of Chenugonipally Peddacheruvu tank for the estimation of its fish fauna. Site 1 was fixed at near the Chenugonipally village and site 2 near the Gadwal town side. Fish were collected for a period of one year from July 2014 to June 2015. The fishes were collected mainly by using cast net and gill nets of different mesh sizes with the assistance of local fishermen. A discussion was also made with the local fishermen to collect many types of information about fishes available in the tank. Immediately after collection photographs were taken prior to preservation for the identification of fishes. Collected fish sample were preserved in 4% formalin and identified with the help of standard keys mentioned in the taxonomic literature [7, 8]. The identification of the species were done mainly on the basis of the colour pattern, scales arrangements, specific spots or marks on the surface of the body, shape of the body, structure of various fins, mouth shapes etc.

### 3. Results and discussion

During the study, a total of 24 species of primary freshwater fishes belonging to 4 orders and 18 genera were recorded from

the study sites. The number of species and their relative abundance is given in Table 2. On the basis of percentage composition and species richness, order Cypriniformes was dominant (10 species) followed by Perciformes (8 species), Siluriformes (5 species), Osteoglossiformes (1 species). During the present investigation the order of dominance is as follows:

**Cypriniformes > Perciformes > Siluriformes > Osteoglossiformes**

The ichthyofauna of Peddacheruvu tank comprises of 9 families namely, Cyprinidae, Bagridae, Siluridae, Clariidae, Channidae, Cichlidae, Ambassidae, Gobiidae and Notopteridae. The sequence of dominance of encountered families is as follows:

**Cyprinidae (42%) > Channidae (13%) = Cichlidae (13%) > Bagridae (12%) > Siluridae (4%) = Clariidae (4%) = Ambassidae (4%) = Gobiidae (4%) = Notopteridae (4%).**

The family Cyprinidae was represented by 10 species, *Catla catla*, *Labeo rohita*, *L. calbasu*, *Cirrhinus mrigal*, *Cyprinus carpio*, *Ctenopharyngodon idella*, *Puntius sophore*, *Amblypharyngodon microlepis*, *Salmostoma bacaila* and *Rasbora daniconius*. Except, *Ctenopharyngodon idella* and remaining species were found common to abundant.

**Table 2:** Ichthyofauna of Chenugonipally Peddacheruvu tank in Mahabubnagar district.

Sl. No.	Species	Family	Abundance
<b>Cypriniformes</b>			
1	<i>Catla catla</i> (Hamilton,1822)	Cyprinidae	A
2	<i>Labeo rohita</i> (Hamilton,1822)	Cyprinidae	A
3	<i>Labeo calbasu</i> (Hamilton, 1822)	Cyprinidae	M
4	<i>Cirrhinus mrigal</i> (Hamilton,1822)	Cyprinidae	M
5	<i>Cyprinus carpio communis</i> (Linnaeus, 1758)	Cyprinidae	C
6	<i>Ctenopharyngodon idella</i> (Valenciennes,1844)	Cyprinidae	R
7	<i>Puntius sophore</i> (Hamilton,1822)	Cyprinidae	M
8	<i>Amblypharyngodon microlepis</i> (Bleeker, 1853)	Cyprinidae	M
9	<i>Salmostoma bacaila</i> (Hamilton, 1822)	Cyprinidae	M
10	<i>Rasbora daniconius</i> (Hamilton,1822)	Cyprinidae	M
<b>Siluriformes</b>			
11	<i>Mystus cavasius</i> (Hamilton, 1822)	Bagridae	M
12	<i>Mystus tengra</i> (Hamilton, 1822)	Bagridae	R
13	<i>Mystus vittatus</i> (Bloch, 1794)	Bagridae	R
14	<i>Ompok pabda</i> (Hamilton, 1822)	Siluridae	R
15	<i>Clarias gariepinus</i> (Burchell, 1822) *	Clariidae	R
<b>Perciformes</b>			
16	<i>Channa gachua</i> (Hamilton, 1822)	Channidae	M
17	<i>Channa marulius</i> (Hamilton, 1822)	Channidae	R
18	<i>Channa striatus</i> (Bloch,1793)	Channidae	M
19	<i>Oreochromis mossambicus</i> (Peters 1852) *	Cichlidae	M
20	<i>Oreochromis niloticus</i> (Linnaeus, 1758) *	Cichlidae	A
21	<i>Etroplus suratensis</i> (Bloch, 1794)	Cichlidae	M
22	<i>Chanda nama</i> (Hamilton, 1822)	Ambassidae	C
23	<i>Glossogobius giuris</i> (Hamilton, 1822)	Gobiidae	R
<b>Osteoglossiformes</b>			
24	<i>Notopterus notopterus</i> (Pallas,1769)	Notopteridae	R

\* Exotic fish; A: Abundant (76-100%); C: Common (26-50%); M: Moderate (11-25%); R: Rare (1-25%)

The family Bagridae was represented by 3 species, *Mystus cavasius*, *Mystus tengra* and *Mystus vittatus* were found rare. The family Channidae was represented by 3 species, *Channa striatus*, *Channa marulius* and *Channa gachua*, of which

*Channa striatus* and *Channa gachua* were found equally abundant. The family Cichlidae was represented by 3 species, *Oreochromis mossambicus*, *O. niloticus* and *Etroplus suratensis*, of which *O. niloticus* was found abundant. The

family Siluridae, Clariidae and Notopteridae was represented 1 species each and were found rare.

Out of 24 fish species found in the Peddacheruvu tank, 10 species belong to the carp group. The carps, *Catla catla*, *Labeo rohita*, *Cirrhinus mrigal*, *Cyprinus carpio* and *Ctenopharyngodon idella* have highly commercial as well as economic importance while the other carps *Puntius amphibius*, *Puntius sophore*, *Amblypharyngodon microlepis*, *Salmostoma bacaila* and *Rasbora daniconius* are economically less important.

Among the catfish group, *Mystus cavasius*, *Mystus vittatus* and *Mystus tengra* belonging to Bargidae family are of high economic importance while the *Ompok pabda* belonging to family Siluridae is also have high economic value. And *Clarias gariepinus* is belonging to the family Clariidae has very less economic value compared to the other catfish species.

Among the murrells, *Channa striatus* and *Channa marulius* bear high economic importance while *Channa gachua* have moderate economic importance. Among the family Notopteridae, *Notopterus notopterus* has less economic importance. The family Cichlidae representing *Oreochromis mossambicus*, *O. niloticus* and *Etilapia suratensis* have practically little economic importance.

Many researchers have reported the strong dominance of Cyprinidae family in their investigation on ichthyofaunal diversity. Reported 23 species belonging to 7 orders where cyprinidae family was dominant with 11 species from Jawalgaon reservoir Solapur district Maharashtra [9]; 18 species from Ekrukha lake Solapur district where Cyprinidae family was dominant with 8 species [10]; 37 species from Issapur dam in district Yavatmal where Cyprinidae family was dominant with 20 species [11]. And also observed 27 species belonging to 11 families where Cyprinidae family was dominant with 13 species from Ambadi dam in the district of Aurangabad,

Maharashtra [12]; 27 species from the Koilsagar reservoir in Mahabubnagar district of Telangana where Cyprinidae family was dominant with 13 species [5]. These studies also support the present study.

The abundance of the tilapia, and the African catfish, *Clarias gariepinus* is more in the canal water fed tanks in the district [13, 14]. Results of this study delineated increased abundance of these fishes in the fishery and have now established feral population in the canal fed water irrigational tanks.

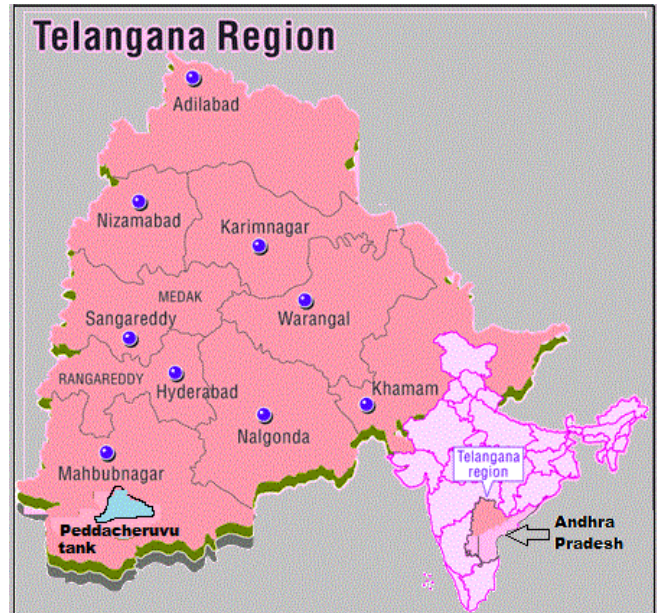
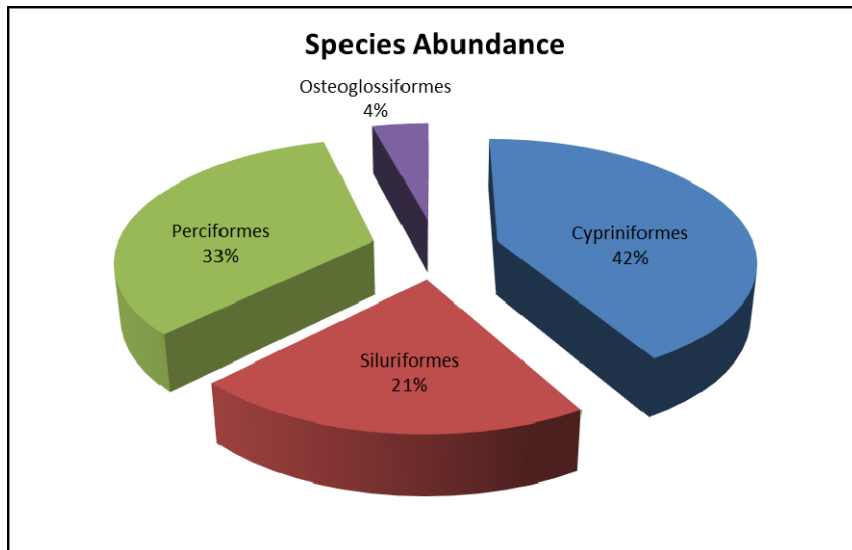


Fig1: Location of Chenugonipally Peddacheruvu tank in Mahabubnagar

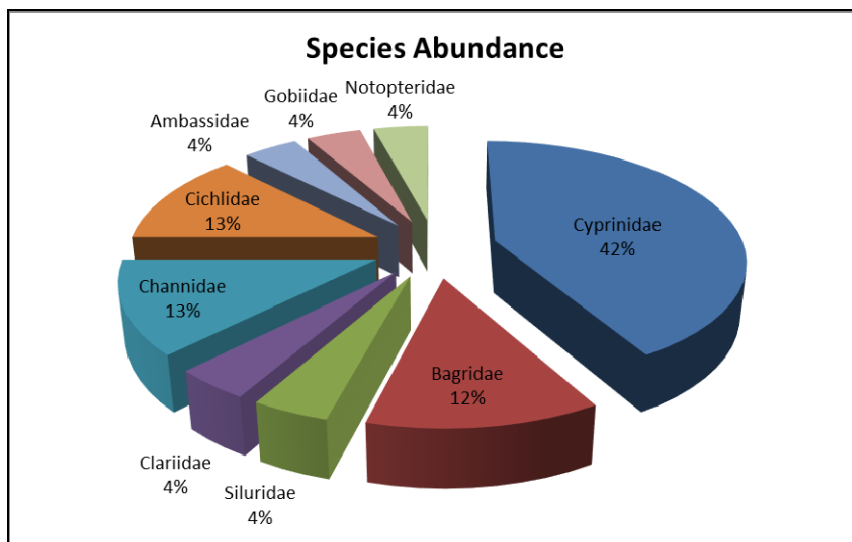


Fig 2: Google image of Chenugonipally Peddacheruvu tank





**Fig 3:** Order-wise fish species composition of Peddacheruvu tank



**Fig 4:** Family-wise fish species composition of Peddacheruvu tank



**Fig 5:** Collection of fish samples from Chenugonipally Peddacheruvu tank



**Fig 6:** Observation of collected fish samples from Chenugonipally Peddacheruvu tank



**Fig 10:** *Clarias gariepinus*



**Fig 7:** *Cyprinus carpio*



**Fig 11:** *Mystus cavasius*



**Fig.8:** *Puntius chola*



**Fig 12:** *Oreochromis niloticus*



**Fig 9:** *Ompok bimaculatus*



**Fig 13:** *Oreochromis mossambicus*





Fig 14: *Channa striata*



Fig 15: *Etroplus suratensis*



Fig 16: *Notopterus notopterus*

#### 4. Conclusion

The fish community in tanks includes the native species and the introduced species for the purpose of fish production. The present study is the first to documentation of Ichthyofauna in the Peddacheruvu tank of Mahabubnagar district in Telangana state. This study should open a new ways for incoming Ichthyofaunal research. Sustainable fish production by taking appropriate steps for sustaining fish diversity is necessary to conserve these vulnerable resources.

#### 5. Acknowledgement

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