# Composition and Occurrence of Fish Fauna in Kaung-hmu-daw Lake, Sagaing Township

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## Abstract

A diverse freshwater fish assemblage in Kaung-hmu-daw In (Lake), Sagaing Township was examined during July 2008 to June 2010. The results showed that a total 41 species of fish belonging to 32 genera, 18 families and eight orders were recorded during the study period. The catch composition showed that 41.46% of order Cypriniformes represented the highest species composition, followed by 24.39% of Perciformes and 17.07% of Siluriforme. Therefore, the most abundant fish species were composed under family Cyprinidae (39.02%) and the least abundant species were observed under families, Cobitidae, Schilbidae, Synbrachidae, Belonidae, Anabantidae, Ambassidae, Cichlidae, Mugilidae, Gobiidae, Belontidae and Tetraodontidae (2.44% each) of the overall catch.
**Keywords**: Composition, occurrence, fish, Kaung-hmu-daw In (Lake).

## Introduction

An understanding of the community structure of a body of water is dependent upon the ability to differentiate between species population changes and variations in spatial and temporal distribution (Wetzel and Likens, 1998).

Fishes are the keystone species which determine the distribution and abundance of other organisms in the ecosystem they represent and are good indicators of the water quality and the health of the ecosystem. Nearly 20 percent of the world's freshwater fish fauna is already extinct or is on the verge of extinction. This may be due to habitat depletion, overfishing etc. (Moyle and Leidy, 1992).

Fish responses to environmental disturbances, including hydromorphological factors that are different in time and space in comparison to simpler organisms, as they tend to be integrated over larger intervals. Fish has been identified as suitable for biological assessment due to its easy identification and economic value (Smith *et al.*, 1999; cited in Vijaylaxmi, 2010).

Kaung-hmu-daw In (Lake) is a seasonal lake formed by the flooding of Ayeyawady River during the rainy season of each year and is bounded on the east by Phu-kan Lake, on the south by Myay-thin Lake, on the west by Maung-ma-kan Lake and on the north by Kaung-hmu-daw pagoda. During the post-flood period, in October, a variety of fish including few larger fishes remained in the lake. This lake is indirectly connected with the river by mean of a small stream through Maung-ma-kan Lake. The water flows slowly from the lake back to the river and becomes low in March and April.

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Since the Ayeyawady River and Kaung-hmu-daw Lake are indirectly connected, this lake receives not only water but also most of the fishes from the river; this inturn serves these fishes for local people. This fact drives to conduct the investigation of fish species in Kaung-hmu-daw Lake. This paper describes the composition and occurrence of fish species in Kaung-hmu-daw Lake.

## Materials and Methods

### Study area

The Kaung-hmu-daw Lake is a distributory of the Ayeyawady River in Sagaing Township, Sagaing Region. The Kaung-hmu-daw Lake lies between 21° 55′ 50″- 21°54′33″ N Latitudes and 95° 55′ 12″– 95°56′45″ E Longitudes. The Kaung-hmu-daw Lake covers an area of approximately 526.5 hectares with a water depth about 1.37 m during rainy season. It reduces to 259.2 hectares with an average depth 0.61 m during the hot season.

### Study period

The duration of the study period was divided into two First study period was July 2008 to June 2009 and second study period July 2009 to June 2010.

### Specimen collection and preservation

The collection of specimens was made on monthly basis. The external characters and measurements were noted in fresh state. Immediate photographs were taken prior to preservation since formalin decolorizes the fish colour on long preservation. The fish were preserved in 10 % formalin for future use. The local name was also noted down. The fish were caught by various fishing gears based on the season and the level of water. Most commonly used fishing gears are Beach Seine (Wun-pu-gyi), Push Net (Yin toon), Set Gill Net (Tan pike), Long Line (Nga-sa-tann) and Rectangular Fish (Zalah hmyone).

### Identification and classification of species

The species identification was made after Day (1878, 1889), Munro (1955), Lagler (1977), Jayaram (1981) and Talwar and Jhingram (1991). Classification was followed according to order of Talwar and Jhingram (1991).

## Results

A total 41 species of fish belonging to 32 genera, 18 families and 8 orders were recorded from Kaung- hmu- daw Lake during the study period. The present study revealed that freshwater fishes of 8 orders, 17 families and 30 genera belonging to 39 species were observed during the first study period of July 2008 to June 2009. During the second study period of July 2009 to June 2010, 41 species of fish distributed under 32 genera, 18 families and 8 orders were documented.

During July 2008 to June 2010, the composition of fish species was found to be highest in order Cypriniformes (41.46%), followed by Perciformes (24.39%), Siluriformes (17.07%), Osteoglossiformes and Clupeiformes (4.88% each) and the lowest composition was represented by Synbraniformes, Cyprinodontiformes and Tetraodontiformes (2.44% each) (Table 1).

In this work, the catch composition showed that Cyprinidae (39.02% and 16 species) and Bagridae (9.75% and 4 species) were dominant groups, followed by families Notopteridae, Clupeidae, Siluridae, Channidae, Mastscembelidae (4.88% and 2 species each). The families of Cobitidae, Schlbeidae, Synbranchidae, Belonidae, Anabantidae, Ambassidae, Cichlidae, Mugilidae, Gobiidae, Belontidae and Tetraodontidae were considered to be less dominant groups. Genus *Labeo* (9.74% and 4 species) was the most dominant group, followed by *Mystus* (7.31% and 3 species). Four different genera *Notopterus, Osteobrama, Puntius* and *Channa* with two species each represented the medium composition (4.88% each). The remaining 25 genera were represented by a single species (2.44% each) (Table 1).

Regarding monthly occurrence of fish species, the highest 39 fish species were recorded in November and the lowest 9 species in May during first year. During second year, the months of October and November showed the highest occurrence of 41 species and May with the lowest occurrence of 9 species (Table 2, 3).

Nine species of fish namely, *Gudusia variegate, Labeo rohita, Osteobrama belangeri, O. cunma, Puntius chola, P. sarana, Pseudambassis ranga, Oreochromis* sp. and *Glossogobius giuris* occurred every month during first year and second year. However, four fish species such as *Notopterus chitala, Labeo stoliczkae, Monopterus alus Mastacembelus zebrinus* were observed only in five months during first year and *Labeo stoliczkae* and *Mastacembelus zebrinus* were recorded only in five months during second year (Table 3).

## Discussion

In the present study, a total 39 species in the first study period and 41 species in the second study period were recorded. The number of fish species between the two study periods was not significant.

During the study period, the order Cypriniformes was found to be dominant group, followed by order Perciformes and Siluriformes. The order Osteoglossiformes and Clupeiformes with two species each and the order Synbrachiformes, Cyprinodontiformes and Tetraodonatiformes with one species each were observed to be less dominant groups. The family Cyprinidae was found to be the most dominant group among all the families.

Dua and Parkash (2009) reported that Cypriniformes are the dominant fish species. Similar observation was reported by Vijaylaxmi *et al.* (2010). The present study agrees with the findings of above mentioned authors.

During the study period, nine species of fish were observed throughout the study period of first year and second year. Therefore, these species are very common in Kaung-hmu-daw Lake.

The less occurrence of fish species such as *Notopterus chitala, Labeo stoliczkae, Monopterus albus* and *Mastacembelus zebrinus* are considered uncommon in this lake. Although, *Aspidoparia morar* and *Anabas testudineus* were observed frequently in second year, these two species were not recorded in first year. Nowadays, fish are at risk of extinction due to overexploitation, habitat degradation, pollution of water with toxic chemicals and using inappropriate methods for collection of fish.

Table 1 Composition of fish species in different orders, families and genera in Kaung-hmu-daw Lake during July 2008 to June 2010

| Order | Composition (%) | Family | Composition (%) | Genus | Composition (%) |
|---|---|---|---|---|---|
| 1.Osteoglossiformes | 4.88 (2 species) | 1.Notopteridae | 4.88 (2 species) | 1.*Notopterus* | 4.88 (2 species) |
| 2.Clupeiformes | 4.88 (2 species) | 2.Clupeidae | 4.88 (2 species) | 2.*Gudusia* | 2.44 (1 species) |
| | | | | 3.*Hilsa* | 2.44 (1 species) |
| 3.Cypriniformes | 41.46 (17 species) | 3.Cobitidae | 2.44 (1 species) | 4.*Botia* | 2.44 (1 species) |
| | | 4.Cyprinidae | 39.02 (16 species) | 5.*Aspidoparia* | 2.44 (1 species) |
| | | | | 6.*Catla* | 2.44 (1 species) |
| | | | | 7.*Cirrhinus* | 2.44 (1 species) |
| | | | | 8.*Cyprinus* | 2.44 (1 species) |
| | | | | 9.*Labeo* | 9.75 (4 species) |
| | | | | 10.*Osteobrama* | 4.88 (2 species) |
| | | | | 11.*Puntius* | 4.88 (2 species) |
| | | | | 12.*Salmostoma* | 2.44 (1 species) |
| | | | | 13.*Amblypharyngodon* | 2.44 (1 species) |
| | | | | 14.*Rainama* | 2.44 (1 species) |
| | | | | 15.*Nemachelius* | 2.44 (1 species) |
| 4.Siluriformes | 17.07 (7 species) | 5.Bagridae | 9.75 (4 species) | 16. *Sperata aor* | 2.44 (1 species) |
| | | 6.Siluridae | 4.88 (2 species) | 17.*Mystus* | 7.31 (3 species) |
| | | 7.Schlbeidae | 2.44 (1 species) | 18.*Ompok* | 2.44 (1 species) |
| | | | | 19.*Wallago* | 2.44 (1 species) |
| | | | | 20.*Eutropiicihthys* | 2.44 (1 species) |
| 5.Synbraniformes | 2.44 (1 species) | 8.Synbranchidae | 2.44 (1 species) | 21.*Monopterus* | 2.44 (1 species) |
| 6.Cyprinodontiformes | 2.44 (1 species) | 9.Belonidae | 2.44 (1 species) | 22.*Xenentodon* | 2.44 (1 species) |
| 7.Perciformes | 24.39 (10 species) | 10.Anabantidae | 2.44 (1 species) | 23.*Anabas* | 2.44 (1 species) |
| | | 11.Ambassidae | 2.44 (1 species) | 24.*Pseudambassis* | 2.44 (1 species) |
| | | 12.Cichlidae | 2.44 (1 species) | 25.*Oreochromis* | 2.44 (1 species) |
| | | 13.Mugilidae | 2.44 (1 species) | 26.*Rhinomugil* | 2.44 (1 species) |
| | | 14.Gobiidae | 2.44 (1 species) | 27.*Glossogobius* | 2.44 (1 species) |
| | | 15.Belondidae | 2.44 (1 species) | 28.*Trichogaster* | 2.44 (1 species) |
| | | 16.Channidae | 4.88 (2 species) | 29.*Channa* | 4.88 (2 species) |
| | | 17.Mastacembelidae | 4.88 (2 species) | 30.*Macrognathus* | 2.44 (1 species) |
| | | | | 31.*Mastacembelus* | 2.44 (1 species) |
| 8.Tetraodontiformes | 2.44 (1 species) | 18.Tetraodontidae | 2.44 (1 species) | 32.*Tetraodon* | 2.44 (1 species) |

Table 2 Monthly occurrence of fish species in Kaung-hmu-daw Lake during July 2008 to June 2009

| Sr. No. | Order/ Family | Species | July | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | April | May | June | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Osteoglossiformes | | | | | | | | | | | | | | |
| | Notopteridae | 1.*Notopterus notopterus* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | ✓ | 11 |
| | | 2.*N. chitala* | - | - | ✓ | - | ✓ | ✓ | ✓ | - | - | - | - | ✓ | 5 |
| 2 | Clupeiformes | | | | | | | | | | | | | | |
| | Clupeidae | 3.*Gudusia variegata* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 12 |
| | | 4.*Hilsa ilisha* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | ✓ | 10 |
| 3 | Cypriniformes | | | | | | | | | | | | | | |
| | Cobitidae | 5.*Botia histrionica* | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | - | - | - | - | ✓ | 6 |
| | Cyprinidae | 6.*Catla catla* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | ✓ | 11 |
| | | 7.*Cirrhinus mrigala* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | ✓ | 10 |
| | | 8.*Cyprinus carpio* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | - | ✓ | 9 |
| | | 9.*Labeo boga* | - | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | - | - | - | ✓ | 6 |
| | | 10.*L. calbasu* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | - | - | - | ✓ | 7 |
| | | 11.*L. rohita* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 12 |
| | | 12.*L. stoliczkae* | - | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | - | - | - | - | 5 |
| | | 13.*Osteobrama belangeri* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 12 |
| | | 14.*O. cunma* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 12 |
| | | 15.*Puntius chola* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 12 |
| | | 16.*P. sarana* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 12 |
| | | 17.*Salmostoma sardinella* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | ✓ | 11 |
| | | 18.*Amblypharyngodon alkinosoni* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | ✓ | 11 |
| | | 19.*Rainama guttatus* | - | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | - | - | 6 |
| | | 20.*Nemacheilus rubidipinnis* | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | 9 |
| 4 | Siluriformes | | | | | | | | | | | | | | |
| | Bagridae | 21.*Sperata aor* | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | ✓ | 9 |

Table 2 Continued

| Sr. No. | Order/ Family | Species | July | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | April | May | June | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 22.*Mystus cavasius* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | 11 |
| | | 23.*M. menoda* | ✓ | ✓ | ✓ | ✓ | ✓ | - | ✓ | - | - | - | - | ✓ | 7 |
| | | 24.*M. pulcher* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | ✓ | 11 |
| | Siluridae | 25.*Ompok bimaculatus* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | ✓ | 11 |
| | | 26.*Wallago attu* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | ✓ | 11 |
| | Schilbeidae | 27.*Eutropiichthys vacha* | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | ✓ | 10 |
| 5 | Synbrachiformes | | | | | | | | | | | | | | |
| | Synbranchidae | 28.*Monopterus albus* | - | - | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | - | - | - | 5 |
| 6 | Cyprinodontiformes | | | | | | | | | | | | | | |
| | Belonidae | 29.*Xenentodon cancila* | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | - | - | ✓ | 7 |
| 7 | Perciformes | | | | | | | | | | | | | | |
| | Ambassidae | 30.*Pseudambassis ranga* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 12 |
| | Cichlidae | 31.*Oreochromis* sp. | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 12 |
| | Mugilidae | 32.*Rhinomugil corsula* | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | - | - | ✓ | 7 |
| | Gobiidae | 33.*Glossogobius giuris* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 12 |
| | Belontidae | 34.*Trichogaster pectoralis* | - | - | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | - | 6 |
| | Channidae | 35.*Channa puntatus* | - | - | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | 7 |
| | | 36.*C. striata* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | 11 |
| | Mastacembelidae | 37.*Macrognathus aral* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | - | - | - | ✓ | 7 |
| | | 38.*Mastacembelus zebrinus* | - | - | ✓ | ✓ | ✓ | ✓ | - | - | - | - | - | ✓ | 5 |
| 8 | Tetraodontiformes | | | | | | | | | | | | | | |
| | Tetraodontidae | 39.*Tetraodon cutcutia* | - | - | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | - | - | ✓ | 6 |
| | Total number of species | | 25 | 32 | 37 | 38 | 39 | 37 | 33 | 27 | 25 | 21 | 9 | 33 | 39 |

Table 3 Monthly occurrence of fish species in Kaung-hmu-daw Lake during July 2009 to June 2010

| Sr. No. | Order/ Family | Species | July | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | April | May | June | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Osteoglossiformes | | | | | | | | | | | | | | |
| | Notopteridae | 1.*Notopterus notopterus* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | ✓ | 10 |
| | | 2.*N. chitala* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | - | - | ✓ | 8 |
| 2 | Clupeiformes | | | | | | | | | | | | | | |
| | Clupeidae | 3.*Gudusia variegata* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 12 |
| | | 4.*Hilsa ilisha* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | - | ✓ | 9 |
| 3 | Cypriniformes | | | | | | | | | | | | | | |
| | Cobitidae | 5.*Botia histrionica* | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | - | - | - | - | ✓ | 6 |
| | Cyprinidae | 6.*Aspidoparia morar* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | - | - | | 7 |
| | | 7.*Catla catla* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | ✓ | 10 |
| | | 8.*Cirrhinus mrigala* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | - | ✓ | 9 |
| | | 9.*Cyprinus carpio* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | - | | 8 |
| | | 10.*Labeo boga* | - | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | - | - | - | ✓ | 6 |
| | | 11.*L. calbasu* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | - | - | - | ✓ | 7 |
| | | 12.*L. rohita* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 12 |
| | | 13.*L. stoliczkae* | - | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | - | - | - | - | 5 |
| | | 14.*Osteobrama belangeri* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 12 |
| | | 15.*O. cunma* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 12 |
| | | 16.*Puntius chola* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 12 |
| | | 17.*P. sarana* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 12 |
| | | 18.*Salmostoma sardinella* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | ✓ | 11 |
| | | 19.*Amblypharyngodon alkinosoni* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | ✓ | 11 |
| | | 20.*Rainama guttatus* | - | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | - | - | 6 |
| | | 21.*Nemachelius rubidipinnis* | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | - | 8 |

Table 3 Continued

| Sr. No. | Order/ Family | Species | July | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | April | May | June | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | Siluriformes | | | | | | | | | | | | | | |
| | Bagridae | 22. *Sperata aor* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | - | ✓ | 9 |
| | | 23.*Mystus cavasius* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | ✓ | 11 |
| | | 24.*M. menoda* | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | - | - | - | - | ✓ | 6 |
| | | 25.*M. pulcher* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | ✓ | 10 |
| | Siluridae | 26.*Ompok bimaculatus* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | ✓ | 10 |
| | | 27. *Wallago attu* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | ✓ | 10 |
| | Schilbeidae | 28.*Eutropiicihthys vacha* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | ✓ | 10 |
| 5 | Synbrachiformes | | | | | | | | | | | | | | |
| | Synbranchidae | 29.*Monopterus albus* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | - | - | ✓ | 8 |
| 6 | Cyprinodontiformes | | | | | | | | | | | | | | |
| | Belonidae | 30.*Xenentodon cancila* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | - | - | ✓ | 8 |
| 7 | Perciformes | | | | | | | | | | | | | | |
| | Anabantidae | 31.*Anabas testudineus* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | ✓ | 11 |
| | Ambassidae | 32.*Pseudambassis ranga* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 12 |
| | Cichlidae | 33.*Oreochromis* sp. | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 12 |
| | Mugilidae | 34.*Rhinomugil corsula* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | - | - | ✓ | 8 |
| | Gobiidae | 35.*Glossogobius giuris* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 12 |
| | Belontidae | 36.*Trichogaster pectoralis* | - | - | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | - | 6 |
| | Channidae | 37.*Channa puntatus* | - | - | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | - | 6 |
| | | 38.*C. striata* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | ✓ | 11 |
| | Mastacembelidae | 39.*Macrognathus aral* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | - | - | - | ✓ | 7 |
| | | 40.*Mastacembelus zebrinus* | - | - | ✓ | ✓ | ✓ | ✓ | - | - | - | - | - | ✓ | 5 |
| | Tetraodontiformes | | | | | | | | | | | | | | |
| | Tetraodontidae | 41.*Tetraodon cutcutia* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | - | - | ✓ | 8 |
| | Total number of species | | 34 | 37 | 39 | 41 | 41 | 39 | 34 | 28 | 23 | 14 | 9 | 34 | 41 |

Managing and conservation programmes could permit an appropriate use of fish resource, which should be related to knowledge of the environmental factors that determinate the patterns of distribution and abundance of the fish species of commercial interest.

Further, there is a need for survey of diversity of fish fauna in different types of habitats all over the country. Industrial effluents and men made pollutants also contribute towards the disruption in the balance on aquatic ecosystem, which should be checked by taking necessary steps. This work would be useful for planning future strategies for development in fish conservation.

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