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## **Species Composition, Seasonal Occurrence and Abundance of Freshwater Fishes in Ayeyarwady River Segment, Sagaing Region, Upper Myanmar**

May Lei Win<sup>1</sup> and Than Than Myint<sup>2</sup>

<sup>1</sup>Department of Zoology, Shwebo University, Upper Myanmar

<sup>2</sup>Department of Zoology, MaU bin University, Lower Manmar

\* **Corresponding author, Email address: maymoung@gmail.com**

### **Abstract**

The study was carried out to assess the fish species composition, seasonal occurrence, and abundance at Ayeyarwady River segment, Sagaing Region, upper Myanmar from July 2017 to June 2018. A total number of 52 species of 37 genera distributed among 20 families and 10 orders of freshwater fishes were recorded during the study period. The highest composition of species was observed in the order Cypriniformes and the lowest in Osteoglossiformes, Anguliformes, Beloniformes and Tetraodontiformes . The highest number of species was recorded in October (cool season) and the lowest were noted in June (dry season) during the study period. The highest numbers of individuals was recorded in order Clupeiformes. According to relative abundance value, the four species were noted as very common (Vc), eight species were common (C), and the remaining 39 species were categorized as uncommon species (Uc). Out of the 51 species recorded, 25 species were encountered at every month and the total of five endemic species and one introduced species was observed during the study period.

**Key words:** species composition, seasonal occurrence, abundance, endemic



## 1. Introduction

Myanmar is endowed with a rich resource of freshwater and brackish-water fisheries due to its extensive large river systems running North to South and a huge network of river systems in the Ayeyarwady River.

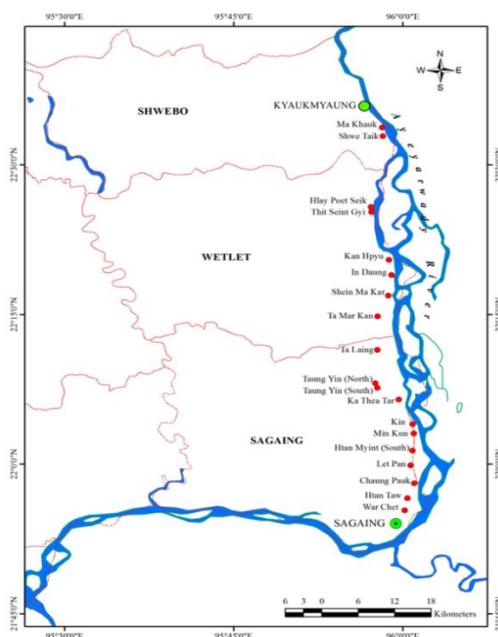
No complete and precise list of all the fish in the Irrawaddy river basin currently exists, but in 1996 it was estimated that there are about 200 species. In 2008, it was estimated that the Irrawaddy ecoregion is home to 119-195 species of fish found nowhere else in the world (endemic). Several new species of fish have been described from the Irrawaddy river basin in recent years (for example, the cyprinid *Danio htamanthinus* in 2016 and the stone loach *Malihkaia aligera* in 2017), and it is likely that undescribed species remain (Wikipedia, 2017).

Ayeyarwady River is an important natural shelter for many aquatic flora and fauna which is less studied. The study of freshwater fishes in Ayeyarwady segment may be essential as one of the corner stone for conservation scheme of biological resources in Myanmar. It is hoped that this paper would provide some information for further research work. Thus, the present study was carried out within the specific area with the following objectives, 1) to investigate and record the freshwater fish in Ayeyarwady Segment, 2) to record relative abundance of fishes in the study area.

## 2. Materials and Methods

### Study Area and Study Period

It was selected Ayeyarwady segment between Kyauk Myaung Township (22° 35' 05"N and 95° 57' 15" E) and Sagaing Township (21° 52' 30"N and 96° 59' 20" E), Sagaing Region. The studied area of Ayeyarwady River is about 80 km (49.7 miles) in length. The present study was undertaken from July 2017 to June 2018 (Figure 1).



**Figure 1.** Map of study area showing Ayeyarwady River Segment (Source: Geography Department, Magway University)

### **Collection, Preservation and Identification of Specimens**

In this study, collection of specimen was made with the helpfulness of local fishermen. Fish sampling and landings survey were done twice a month. Fish samples were collected in Ayeyarwady segment at early morning and evening. Sample fishes at different species were randomly selected from the catches of different fishing gears in the River. The photographs of fresh specimens were taken by using digital camera. Measurements were also taken on sample fishes to aid the identification process using keys provided by Day (1878), Lagler (1977), Talwar, and Jhingran (1991), Jayaram (2013), Fish Base (2017). After identification, all fishes were maintained in laboratory of Zoology Department, Shwebo University for later taxonomical revision.

### **Analysis of Data**

Based on the recorded fish species, relative compositions of species in different orders were analyzed. Native, introduced, and endemic fish species were classified among

the recorded species according to FishBase, 2017 during the study period. The recorded data were analyzed as following.

### **Relative Abundance (Bisht *et al.*, 2004)**

$$\text{Relative abundance} = \frac{\text{Number of individuals in each a species}}{\text{Total number of individuals of all the observed species}}$$

The average relative abundance was categorized as:

Uncommon (uC) = having relative abundance less than 0.0100

Common (C) = having relative abundance of 0.0100 and above but less than 0.0500

Very common (vC) = having relative abundance of 0.0500 and above

## **3. Results and Discussion**

### **Species Composition of Fishes in the Different Orders**

A total number of 52 species of 37 genera distributed among 20 families and 10 orders of freshwater fishes were recorded during the study period (Table 1).

**Table 1.** Composition and percentage representation of freshwater fishes in each order

Order	Family	Genus	Species	Percentage (%)
Clupeiformes	1	1	2	4
Osteoglossiformes	1	1	1	2
Anguilliformes	1	1	1	2
Cypriniformes	3	11	19	36
Perciformes	5	5	5	9
Anabantiformes	2	2	2	4
Synbranchiformes	1	2	4	8
Siluriformes	4	12	16	31
Beloniformes	1	1	1	2
Tetraodontiformes	1	1	1	2
Total	20	37	52	100

The species *Gudusia chapra* (Indian river shad) and *G. variegata* (Burmese river shad) were recorded under the Family Clupeidae of Order Clupeiformes, *Notopterus notopterus* (Grey featherback) was recorded under the Family Notopteridae of Order Osteoglossiformes. The species *Anguilla bengalensis* (Indian mottled eel) under Family Anguillidae was recorded in Order Anguilliformes (Figure 4).

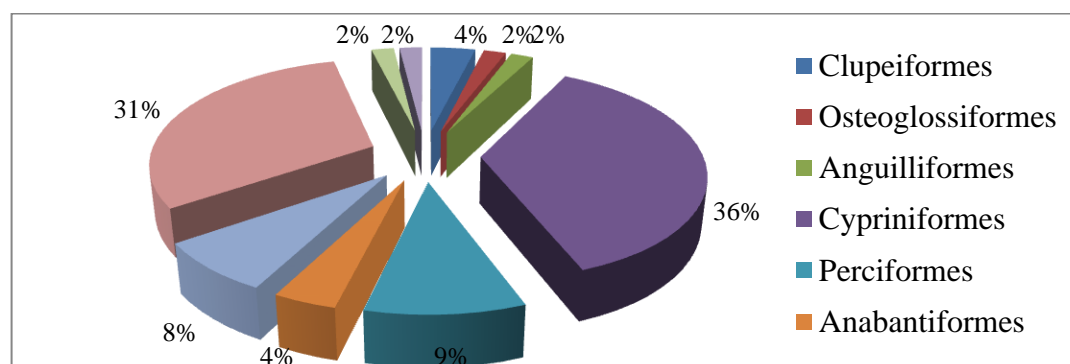
In Order Cypriniformes, 15 species were recorded, and those are *Catala catala* (Indian carp), *Cirrhinus marigala* (Marigal), *Labeo rohita* (Rohu), *L. calbasu* (Orange fin labeo), *L. stoliczkae* (Minor carp), *L. angra* (Angra label), *L. bata* (Bata), *Puntius sophore* (Spot fin swamp barb), *P. sarana* (Olive barb), *Salmostoma sardinella* (Sardinella razorbelly minnow), *Amblypharyngodon atkinsonii* (Burmese carplet), *Barilius guttatus* (Burmese trout), *B. gatensis* (River carp baril), *Osteobrama belangeri* (Manipur osteobrama) and *O. alfrediana* (Copper minnow). The species *Acantopsis choirorhynchus* (Horseface loach) and *Lepidocephalus thermalis* (Malabar loach) were found under the Family Cyprinidae, *Botia berdmorei* (Blyth's loach) from Cobitidae, and *Botia histrionica* (Burmese loach) under the Family Botiidae (Figure 4).

The five species of *Mystus cavasius* (Gangetic mystus), *M. pulcher* (Pulcher mystus), *M. leucophasis* (Sittaung mystus), *Hemibagrus microphthalmus* (Ayeyarwady mystus), *Sperata acicularis* (Long-whiskered catfish) under the Family Bagridae; *Eutropiichthys vacha* (Batchwa vacha), *Clupisoma prateri* (catfish), *Clupisoma macrophthalmus* (catfish) and *Neotropius atherinoides* (Indian postasi) under the Family Schilbeidae; *Ompok pabo* (Pabo catfish) and *Wallago attu* (Boal) under the Family Siluridae; *Gagata dolichonema* (Gagata), *G. melanopterus* (Gatata), *Bagarius yarrelli* (Yellow catfish), *Glyptothorax sinensis* (Yellow catfish) and *Rita rita* (Rita) under the Family Bagridae were noted under the Order Siluriformes (Figure 5).

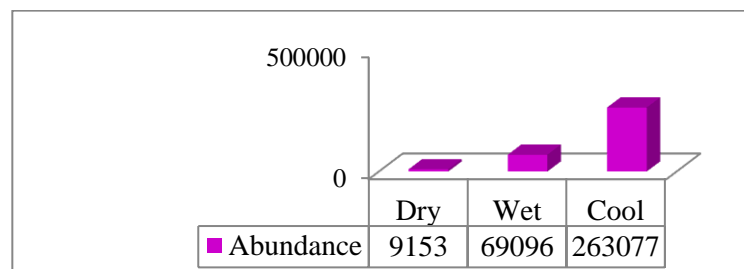
In Order Beloniformes , the one species, *Xenentodon cancila* (freshwater garfish) was observed under the Family Belonidae. Five species belonging to five families were found to be observed in Order Perciformes. These species were *Rhinomugil corsula* (Corsula mullet) under the family of Mugilidae, *Parambassis ranga* (Indian glassy fish) under the Family Ambassidae; *Oreochromis* sp. (Tilapia) under the Family Cichlidae; *Trichopodus pectoralis* (Snakeskin gourami) under the Family Osphronemidae; *Glossogobius giuris* (Tank goby) under the Family Gobidae (Figure 5).

*Anabas testudineus* (Climbing perch) from the Family Anabantidae and *Channa striata* (Striped snakehead)) from the Family Channidae belong to Order Anabantiformes were also noticed, respectively. In order Synbranchiformes, the four species of *Macrognathus aculeatus* (Lesser spiny eel) *M. zebrinus* (Zebra spiny eel), *Mastacembelus armatus* (Tire -track spiny eel) and *M. unicolor* (Spottd eel) of family Mastacembelidae were recorded. The only one species *Tetraodon cutcutia* (Ocellated pufferfish) was noted in the Family Tetraodontidae under the Order Tetraodontiformes (Figure 5).

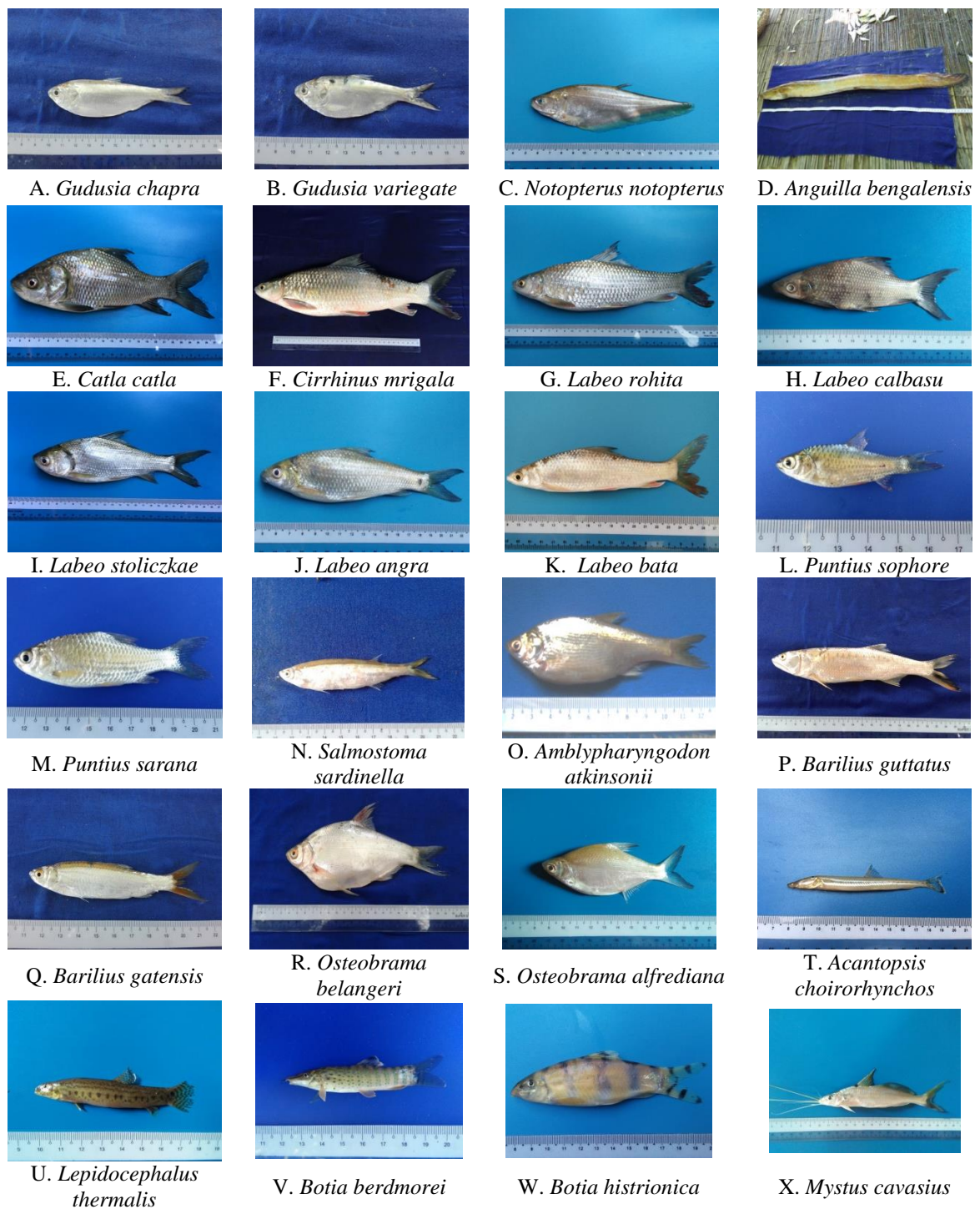
Among the recorded data, the highest composition of species was observed in the order Cypriniformes (36%) and the lowest each (2%) in Osteoglossiformes, Anguilliformes, Beloniformes, and Tetradontiformes respectively (Figure 2).

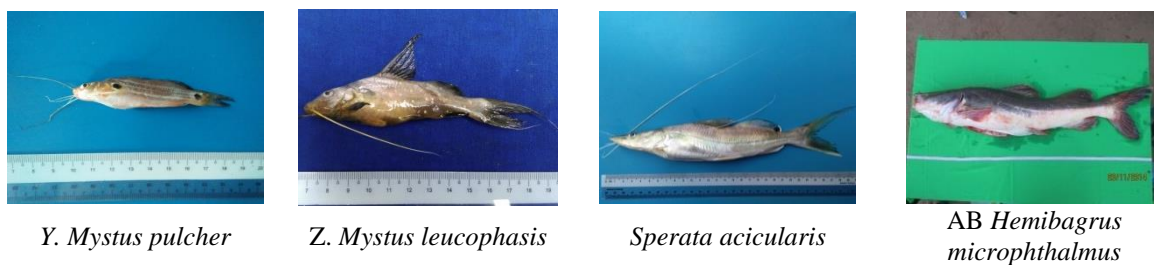


**Figure 2.** Percentage representation of freshwater fishes recorded in each order

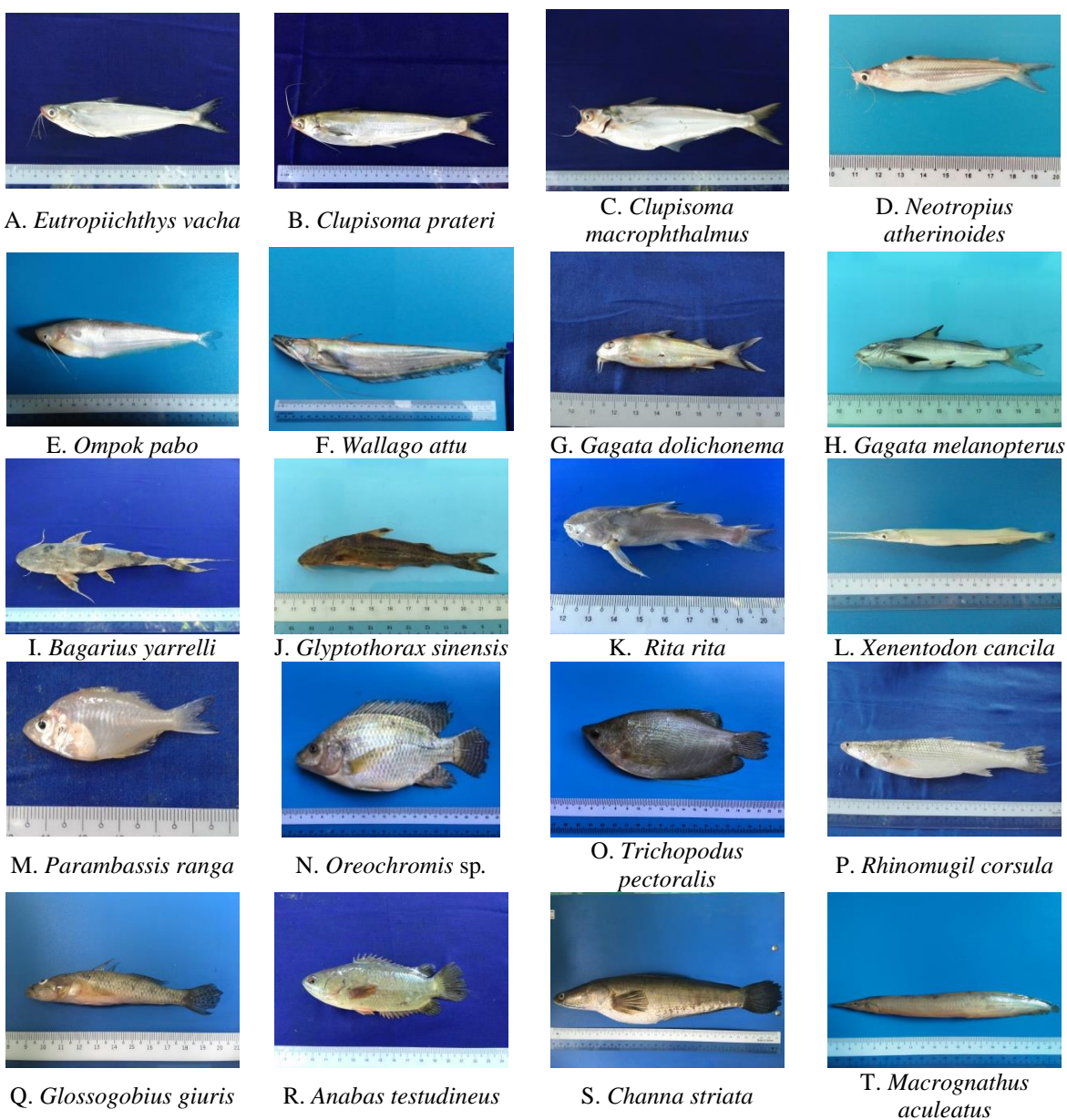


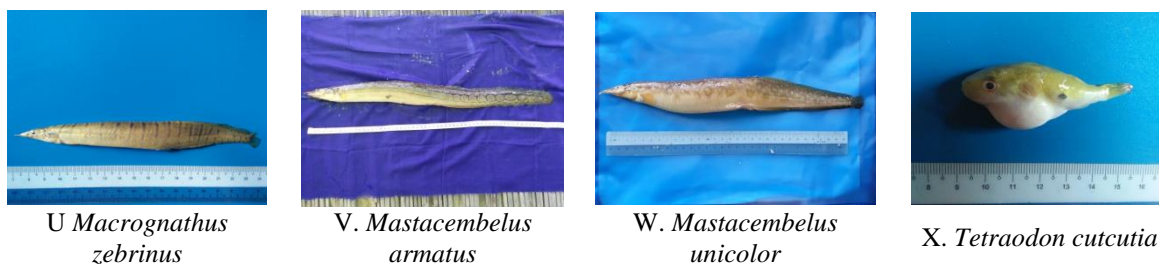
**Figure 3.** Seasonally abundance of fishes recorded from the study area





**Figure 4.** Some recorded fish species of Order Clupeiformes (A, B), Osteoglossiformes (C), Anguilliformes (D), Cypriniformes (E - W) and Siluriformes (X – AB)





**Figure 5.** Some recorded fish species of Order Siluriformes (A- K), Beloniformes (L), Perciformes (M – O), Anabantiformes (R, S), Synbranchiformes (T – W) and Tetraodontiformes (X)

### Seasonal Occurrence, Abundance and Relative Abundance of Recorded Fish Species in Study Area

In the present study, a total number of 38 species belonging to 27 genera of 17 families under nine orders were recorded in dry season (from mid-February to mid-June). Total number of fish caught (9153) were recorded and recorded percentage (3%) was found during the study period (Table 2 and Figure 3).

The recorded species, *Amblypharygodon atkinsonii* (2820); relative abundance (0.273), was found to be the most abundant in dry season. The total of number (1034) of caught fish; the relative abundance of *Gudusia chapra* (0.100) and followed by *Mystus cavasius* (855); relative abundance (0.083), *Gudusia variegata* (833); relative abundance (0.081), *Mystus pulcher* (700); relative abundance (0.068), were recorded and these five species were very common (vC). The total number of *Labeo angra* (379); relative abundance (0.037), *L. bata* (356); relative abundance (0.035), *Puntius sophore* (210); relative abundance (0.020), *P. sarana* (137); relative abundance (0.017), *Lepidocephalus thermalis* (500); relative abundance (0.048), *Clupioma macrophthalmus* (135); relative abundance (0.013) and *Parambassis ranga* (195); relative abundance (0.0189), and these seven species were recorded as common species(C). The remaining of 26 species was recorded as uncommon (uC) (Table 3).

In Wet Season (from mid-June to mid-October), a total number of 40 species belonging to 27 genera of 15 families under seven orders were recorded. Total number of fish caught (69096) were recorded and recorded percentage (20%) was observed. In Wet Season, *Barilius gatensis* (23358); relative abundance (0.339), was found to be the most abundant in Wet Season. The number of *Amblypharyngodon atkinsonii* (13460); relative abundance (0.195), *Gudusia chapra* (5550); relative abundance (0.080), *Labeo bata* (3833); relative abundance (0.056), *Puntius sarana* (3730); relative abundance (0.054) were recorded and these five species were very common (vC). The total number of *Gudusia variegata* (2200); relative abundance (0.032), *Labeo angra* (2968); relative abundance (0.043), *Puntius sophore* (1826); relative abundance (0.027), *Salmostoma sardinella* (1577); relative abundance (0.023), *Barilius guttatus* (2408); relative abundance (0.0349), *Mystus cavasius* (2960); relative abundance (0.043), *Mystus pulcher* (2538); relative abundance (0.037) and *Parambassis ranga* (760); relative abundance (0.0110), and these eight species were recorded as common species (C). The remaining of 27 species was recorded as uncommon (uC) (Table 4).

In Cool Season (from mid-October to mid-February), a total number of 48 species belonging to 33 genera of 20 families under 10 orders were recorded. Total number of fish caught (263077) were recorded and recorded percentage (77%) was observed. In Cool Season, *Gudusia chapra* (112900); relative abundance (0.391), was found to be the most abundant in Cool Season. The number of *Gudusia variegata* (69900); relative abundance (0.242) and *Amblypharyngodon atkinsonii* (34200); relative abundance (0.118), were recorded, and these three species were very common (vC). The total number of *Labeo angra* (5600); relative abundance (0.019), *Labeo bata* (7345); relative abundance (0.025), *Puntius sophore* (4142); relative abundance (0.0143), *Puntius sarana* (6654); relative abundance (0.023), *Lepidocephalus thermalis* (3112); relative abundance (0.011), *Mystus*

*cavasius* (5390); relative abundance (0.019) and *Mystus pulcher* (6200); relative abundance (0.022) were recorded and these seven species were recorded as common species (C). The remaining of 37 species was recorded as uncommon (uC) (Table 5).

In the present study, a total number of 52 species of 37 genera distributed among 20 families and 10 orders of freshwater fishes were recorded. Among the recorded data, the highest composition of species was observed in the Order Cypriniformes (36%) and the lowest each (2%) in Osteoglossiformes, Anguiliformes, Beloniformes, and Tetraodontiformes respectively.

Cypriniformes is an order of ray-finned fish, including the carps, minnows, loaches and relatives. This order contains 11-12 families, over 400 genera, and more than 4,250 species. They are most diverse in southeastern Asia, and are entirely absent from Australia and South America (FishBase, 2004). Since Myanmar is a country located in Southeast Asia region and much of the environmental conditions were almost the same in these regions, most species was recorded in Order Cypriniformes in present study and this finding was agreed with that of FishBase, 2004. Moreover, many local researchers also found that the species composition in order Cypriniformes was the largest in different study sites (Htay Htay Sein, 2010) and Nwe Ni Saw (2013). It was noted the species recorded under this order, such as *Cirrhinus marigala*, *Labeo rohita*, *L. calbasu*, *L. angra*, *L. bata*, *Amblypharyngodon atkinsonii*, *Osteobrama belangeri* and *Lepidocephalus thermalis* were economically important as their daily food for local people of Myanmar.

According to FishBase (2017), the total of 3 species was noted in Order Osteoglossiformes, 3 species in Order Anguilliformes, 10 species in Order Beloniformes and 4 species in Order Tetraodontiformes respectively in Myanmar. In the present study, only one species in each order was recorded.

According to the recorded data, the highest number of fish species (48 species, 38%) was recorded in cool season and the lowest (38 species, 30%) in dry season. It was also noted that, 25 species were encountered in all seasons while *Anguilla bengalensis* was encountered only once in November in cool season and the rest of 25 were recorded as not continuously.

Based on the relative abundance, very common (vC), common (C) and uncommon (uC) were classified. In dry season, among 38 species, five species were recorded as very common (vC), seven species as common (C) and 26 species as uncommon (uC). The highest number of individual (2820) with relative abundance (0.273494) was recorded in *Amblypharyngodon atkinsonii* and the lowest number only two with relative abundance (0.000194) in *Bagarius yarrelli*.

Out of 40 species, five species as very common (vC), eight species as common (C) and 27 species as uncommon (uC) were recorded in wet season. The highest number of individual (23359) with relative abundance (0.3386) in *Barilius gatensis* and the lowest number of individual only two; relative abundance (0.000) in the species *Bagarius yarrelli* was noted in wet season. According to the IUCN Red List (2017) the *Bagarius yarrelli* was near threatened species but these species were collected every season in the study area.

In cool season, three species were recorded as very common (vC), seven species as common (C) and 37 species as uncommon (uC) in 48 species. The highest number of individual (112900) with relative abundance (0.3908) was noted in the species *Gudusia chapra* and the lowest number of individual only one with relative abundance ( $3 \times 10^{-6}$ ) in the species *Anguilla bengalensis* at cool season. This species was collected only one specimen throughout the study period.

Fishbase (2017) stated that 58 endemic freshwater fish species in Myanmar. In the present study, total of five endemic of *Gudusia variegata*, *Labeo stolizkae*, *Mystus leucophasis*, *Clupisoma prateri* and *Macrogathus zebrinus* were recorded.

Among the three seasons, the highest number of fish was recorded in cool season and lowest in dry season, because it was depended on the water level and some environmental factors in study area. Findings of this study will be very helpful to conserve this unique natural habitat of fish, diversity and other fauna.

**Table 2.** Relative seasonal occurrences of fish species recorded from the study area

	Order	Family	Genus	Species
Dry Season	9	17	27	38
Wet Season	7	15	27	40
Cool Season	10	20	33	48

**Table 3.** Abundance and relative abundance of fish species recorded in Dry Season

Species	Abundance	Relative abundance	Status
<i>Gudusia chapra</i>	1034	0.100281	vC
<i>Gudusia variegata</i>	833	0.080788	vC
<i>Notopterus notopterus</i>	64	0.006207	uC
<i>Catla catla</i>	39	0.003782	uC
<i>Labeo rohita</i>	47	0.004558	uC
<i>Labeo angra</i>	379	0.036757	C
<i>Labeo bata</i>	356	0.034526	C
<i>Puntius sophore</i>	210	0.020367	C
<i>Puntius sarana</i>	173	0.016778	C
<i>Amblypharyngodon atkinsonii</i>	2820	0.273494	vC
<i>Osteobrama belangeri</i>	55	0.005334	uC
<i>Osteobrama alfrediana</i>	34	0.003297	uC
<i>Acantopsis choirorhynchus</i>	26	0.002522	uC
<i>Lepidocephalus thermalis</i>	500	0.048492	C
<i>Botia berdmorei</i>	33	0.0032	uC
<i>Botia histrionica</i>	41	0.003976	uC
<i>Mystus cavasius</i>	855	0.082921	vC
<i>Mystus pulcher</i>	750	0.067889	vC
<i>Sperata acicularis</i>	7	0.000679	uC
<i>Eutropiichthys burmannicus</i>	135	0.013093	C
<i>Eutropiichthys vacha</i>	141	0.013675	uC
<i>Eutropiichthys sp.</i>	57	0.005528	uC
<i>Ompok pabo</i>	39	0.003782	uC
<i>Wallago attu</i>	34	0.003297	uC
<i>Gagata dolichonema</i>	17	0.001649	uC
<i>Gagata melanopterus</i>	18	0.001746	uC
<i>Bagarius yarrelli</i>	2	0.000194	uC
<i>Glyptothorax sinensis</i>	17	0.001649	uC
<i>Xenentodon cancila</i>	8	0.000776	uC
<i>Parambassis ranga</i>	295	0.018912	C
<i>Oreochromis nilotica</i>	50	0.004849	uC
<i>Glossogobius giuris</i>	60	0.005819	uC
<i>Anabas testudineus</i>	36	0.003491	uC
<i>Channa striata</i>	4	0.000388	uC
<i>Macrognathus aculeatus</i>	49	0.004752	uC
<i>Macrognathus zebrinus</i>	54	0.005237	uC
<i>Mastacembelus armatus</i>	26	0.002522	uC
<i>Tetraodon cutcutia</i>	5	0.000485	uC
Total	uC = 26	C = 7	vC = 5

**Table 4.** Abundance and relative abundance of fish species recorded in Wet Season

Species	Abundance	Relative abundance	Status
<i>Gudusia chapra</i>	5550	0.0804	vC
<i>Gudusia variegata</i>	2200	0.0319	C
<i>Labeo rohita</i>	60	0.0009	uC
<i>Labeo calbasu</i>	5	0.0001	uC
<i>Labeo angra</i>	2968	0.0430	C
<i>Labeo bata</i>	3833	0.0556	vC
<i>Puntius sophore</i>	1826	0.0265	C
<i>Puntius sarana</i>	3730	0.0541	vC
<i>Salmostoma sardinella</i>	1577	0.0229	C
<i>Amblypharyngodon atkinsonii</i>	13460	0.1951	vC
<i>Barilius guttatus</i>	2408	0.0349	C
<i>Barilius gatensis</i>	23358	0.3385	vC
<i>Osteobrama belangeri</i>	149	0.0022	uC
<i>Osteobrama alfrediana</i>	122	0.0018	uC
<i>Mystus cavasius</i>	2960	0.0429	C
<i>Mystus pulcher</i>	2538	0.0368	C
<i>Mystus leucophasis</i>	12	0.0002	uC
<i>Sperata acicularis</i>	18	0.0003	uC
<i>Eutropiichthys burmannicus</i>	292	0.0042	uC
<i>Eutropiichthys vacha</i>	274	0.0040	uC
<i>Eutropiichthys sp.</i>	75	0.0011	uC
<i>Neotropius atherinoides</i>	12	0.0002	uC
<i>Ompok pabo</i>	58	0.0008	uC
<i>Wallago attu</i>	51	0.0007	uC
<i>Gagata dolichonema</i>	52	0.0008	uC
<i>Gagata melanopterus</i>	55	0.0008	uC
<i>Bagarius yarrelli</i>	2	0.0000	uC
<i>Glyptothorax sinensis</i>	27	0.0004	uC
<i>Xenentodon cancila</i>	76	0.0011	uC
<i>Parambassis ranga</i>	760	0.0110	C
<i>Oreochromis nilotica</i>	101	0.0015	uC
<i>Trichopodus pectoralis</i>	31	0.0004	uC
<i>Rhinomugil corsula</i>	85	0.0012	uC
<i>Glossogobius giuris</i>	102	0.0015	uC
<i>Anabas testudineus</i>	42	0.0006	uC
<i>Channa striata</i>	25	0.0004	uC
<i>Macrognathus aculeatus</i>	73	0.0011	uC
<i>Macrognathus zebrinus</i>	86	0.0012	uC
<i>Mastacembelus armatus</i>	32	0.0005	uC
<i>Tetraodon cutcutia</i>	11	0.0002	uC
Total	uC = 27	C = 8	vC = 5

**Table 5.** Abundance and relative abundance of fish species recorded in Cool Season

Species	Abundance	Relative abundance	Status
<i>Gudusia chapra</i>	112900	0.3908	vC
<i>Gudusia variegata</i>	69900	0.2420	vC
<i>Notopterus notopterus</i>	137	0.0005	uC
<i>Anguilla bengalensis</i>	1	0.0000	uC
<i>Catla catla</i>	81	0.0003	uC
<i>Cirrhinus mrigala</i>	91	0.0003	uC
<i>Labeo rohita</i>	112	0.0004	uC
<i>Labeo calbasu</i>	18	0.0001	uC
<i>Labeo stoliczkae</i>	39	0.0001	uC
<i>Labeo angra</i>	5600	0.0194	C
<i>Labeo bata</i>	7345	0.0254	C
<i>Puntius sophore</i>	4142	0.0143	C
<i>Puntius sarana</i>	6654	0.0230	C
<i>Amblypharyngodon atkinsonii</i>	34200	0.1184	vC
<i>Osteobrama belangeri</i>	177	0.0006	uC
<i>Osteobrama alfrediana</i>	132	0.0005	uC
<i>Acantopsis choirorhynchus</i>	89	0.0003	uC
<i>Lepidocephalus thermalis</i>	3112	0.0108	C
<i>Botia berdmorei</i>	140	0.0005	uC
<i>Botia histrionica</i>	324	0.0011	uC
<i>Mystus cavasius</i>	5390	0.0187	C
<i>Mystus pulcher</i>	6200	0.0215	C
<i>Mystus leucophasis</i>	27	0.0001	uC
<i>Sperata acicularis</i>	43	0.0001	uC
<i>Hemibagrus peguensis</i>	68	0.0002	uC
<i>Eutropiichthys burmannicus</i>	820	0.0028	uC
<i>Eutropiichthys vacha</i>	756	0.0026	uC
<i>Eutropiichthys sp.</i>	410	0.0014	uC
<i>Ompok pabo</i>	171	0.0006	uC
<i>Wallago attu</i>	238	0.0008	uC
<i>Gagata dolichonema</i>	49	0.0002	uC
<i>Gagata melanopterus</i>	57	0.0002	uC
<i>Bagarius yarrelli</i>	11	0.0000	uC
<i>Glyptothorax sinensis</i>	22	0.0001	uC
<i>Rita rita</i>	22	0.0001	uC
<i>Xenentodon cancila</i>	95	0.0003	uC
<i>Parambassis ranga</i>	2460	0.0085	uC
<i>Oreochromis nilotica</i>	117	0.0004	uC
<i>Trichopodus pectoralis</i>	56	0.0002	uC
<i>Rhinomugil corsula</i>	84	0.0003	uC
<i>Glossogobius giuris</i>	139	0.0005	uC
<i>Anabas testudineus</i>	127	0.0004	uC

**Table 5.** Continued

Species	Abundance	Relative abundance	Status
<i>Channa striata</i>	76	0.0003	uC
<i>Macrogathus aculeatus</i>	148	0.0005	uC
<i>Macrogathus zebrinus</i>	140	0.0005	uC
<i>Mastacembelus armatus</i>	55	0.0002	uC
<i>Mastacembelus unicolor</i>	90	0.0003	uC
<i>Tetraodon cutcutia</i>	12	0.0000	uC
Total	uC = 37	C = 7	vC = 3

uC = Uncommon

C = Common

vC = Very Common

#### 4. Conclusions

The Ayeyarwady River supports diverse and abundant population of freshwater fishes in Myanmar. The flood plains of the Ayeyarwady River are highly productive and play an important role in the ecology of the river system. These characteristics could probably create suitable niches for a variety of fish species and subsequently higher fish abundance will be found in that habitat and also harbour five endemic species, the study area need to be maintained sustainable yield.

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