

BIODIVERSITY STATUS OF FISHES IN KAYAMKULAM BACKWATER, KERALA**R. REMYA^{a1} AND S. AMINA^b**^aDepartment of Zoology, S.D College, Alappuzha, Kerala, India^bDepartment of Zoology, M.S.M. College, Kayamkulam, Kerala, India**ABSTRACT**

The fishes are one of the most important, vertebrate, provided rich protein sources for human and several animals and important elements in the economy of many countries. Fish diversity essentially represents the fish faunal diversity. The survey was undertaken during the period from September 2015 to August 2016 in Kayamkulam backwater, Kerala. The major objective of this study was to find out the biodiversity status of fishes in Kayamkulam backwater, Kerala. Conservation status of fishes was assessed by IUCN Conservation status. The Survey of the studied stretch of backwater were resulted in recording of 125 fish species belonging to 13 orders, 87 genera and 57 families. According to IUCN conservation status 46 species are not evaluated, 39 species are least concern, 19 species are not recorded in red list, 6 species are data deficient, 7 species are nearly threatened, 4 species are vulnerable I species is not yet been assessed and only single species in both endangered and critically endangered status.

KEYWORDS: Ichthyofauna, Biodiversity, IUCN, Endangered

A unique feature of Kerala is its long stretch of backwaters running parallel to the sea and separated by narrow structures of land. All these backwaters receive freshwater from the 41 westward flowing rivers and sea water from their connection with the sea during the tidal cycle. The backwaters of Kerala have a significant role in the socio-economic and cultural history of the state.

Estuaries are the meeting place of fresh water from rivers and salt water from the sea and as such are dynamic environments characterized by large fluctuations in environmental conditions (James et al., 2007). Biodiversity refers to the abundance and the variety within and among fauna and flora as well as the ecosystem and ecological processes to which they belong and is thus usually considered at ecosystem, species and genetic levels. Species diversity refers to the variety of living organisms, and genetic diversity refers to the total genetic information contained in the genes of an individual species relate. Biodiversity is essential for stabilization of ecosystem, protection of overall environmental quality for understanding intrinsic wealth of all species on the earth, (Ehrlich and Wilson, 1991). The species diversity of an ecosystem is related to the amount of living and non living organic matter present in it. Fishes are one of the important elements in the economy of many nations as they have been a stable item in the

diet of many people (Kurup and Samuel, 1985). Fish constitutes almost half of the total number of vertebrates in the world. They live in almost all conceivable aquatic habitats, c.21, 723 living species of fish have been recorded out of 39,900 species of vertebrates (Jayaram, 1999) of which 8,411 are fresh water species and 11,650 are marine. Ichthyodiversity refers to variety of fish water species, depending on context and scale; it could refer to alleles regimes (Burton et al, 1992). Using species assessment as a tool is one way of understanding the threats to biodiversity ecosystem and specially the impacts of changing ecosystem on human well being. However, considering the reason mentioned above present study aimed to describe fin fish assemblages structure at Kayamkulam Backwater.

STUDY AREA

The area selected for the present study is Kayamkulam backwater, shallow brackish water lagoon. The Kayamkulam brackish water lies between latitudes 9⁰2'N and 9⁰16'N and longitudes 76⁰25'E. The backwater occupies area in both Alappuzha and Kollam district of total 1,65233 hectares. The four stations are considered for the present study were 1-Aayiramthengu, 2-Valiyazheekal, 3-Kochiyude jetti, 4-Choolatheruvu.



MATERIALS AND METHODS

The study area is divided into four sampling stations i.e 1.Aayiramthengu, 2.Valiyazheekal, 3.Kochiyude jetti, 4.Choolatheruvu for fish species collection. Data were collected from September 2015 to august 2016. Gill nets, cast net and local equipment were used for fishing purpose in this estuary. Fish samples are collected from the local fish landing centers from previously contacted fisherman. Generally fisherman sort non target fishes after catching. Local fisherman are requested not to throw the non target fishes and convinced them to understand the importance of both target and non target species in research. Fishes were preserved in 10%formalin. In the laboratory samples were sorted and identified to species level.

Identification of Fishes

Fishes are identified with the help of standard keys (Day Volume, 1965, Nelson, 2006, Jayaram and Jhingran, 1991).

RESULTS

In the present study fishes belonging to 13orders, 57 families, 87genera and 125 species were obtained during the period of study from Sept.2015 to Aug.2016 using the different types of nets from Kayamkulam Backwater. Of the 13 orders, perciformes dominated with 30 families, this was followed by the order Clupeiformes with 5 families. A total of the 57 families, caranginidae dominated with 9 species represented by *Carangoides praeuteus*, *Alepes melanoptera*, *Atule mate*, *Scomberoides lysan*, *Carangoides malabaricus*, *Caranx sexfasciatus*, *Caranx ignobilis*, *Megalopes cordyla* and *Trachinotos blochii*. The thirty one families had only one species each. Their IUCN classification is also represented in Table:1 .According to IUCN conservation status 46 species are not evaluated, 39 species are least concern, 19 species are not recorded in red list, 6 species are data deficient, 7 species are nearly threatened, 4 species are vulnerable I species is not yet been assessed and only

single species in both endangered and critically endangered status.

PISCINE TAXONOMY

Table 1: List of fishes collected from Kayamkulam Backwater (study area)

Sl. No.	Piscine Taxonomy
1	<p>Kingdom : Chordata Phylum : Animalia Class : Actinopterygii Order : Clupeiformes Family : Clupeidae Sub family:Dorsomatinae 1.Nematalosa nasus(Bloch ,1795) 2.Anodontostoma chacunda(Hamilton,1822) 3.Tenualosa reevesii(Richardson,1846) 4.Esculosa thoracata(Valenciennes,1847) 5.Sardinella longiceps(Valenciennes,1847) Family:Pristigasteridae 6.Pellona ditchela(Valenciennes,1847) Family:Dussumieridae Sub family:Dussumieriinae 7.Dussumieri hasseltii(Bleeker,1850) Family:Engraulidae Sub family:Engraulina 8.Stolephorus indicus(Van hasselt,1823) 9. Stolephorus commersonnii(Lacepede,1803) Sub family:Coiliinae 10.Thyrssa setirostris(Broussonet,1782) 11.Thyrssa malabarica(Bloch,1795) 12.Thyrssa mystax(Bloch & Schneider,1801) Family:Sparidae Sub family:Sparinae 13.Acanthopagrus berda(Forsskal,1775)</p>
2	<p>Order: Anguilliformes Family : Anguillidae 14.Anguilla bicolor bicolor(McClelland,1845) Sub family:Merccinae 15.Anguilla Anguilla Family:Muraenesocidae 16.Congresox talabonoides(Bleeker,1835) Family:Ophichthidae Subfamily:Ophichthinae 17.Ophichthus altipennis(J. N.Ahi,1789)</p>
3	<p>Order:Beloniformes Family:Hemirhamphidae Sub family:Ancyrocephalinae 18.Hyporhamphus quoyi(Valenciennes,1847) Sub family:Hemirhamphinae 19.Hyporhamphus xanthopterus(Valenciennes,1847) Family:Belonidae 20.Xenentodon cancila(Hamilton-Buchanan,1822)</p>
4	<p>Order: Cypriniformes Family: Cyprinidae 21.Labeo dussumeiri (Valenciennes,1842) 22.Puntius filamentosus(Hamilton-Buchanan,1822) Sub family: Cyprininae 23.Puntius mahecola(Valenciennes,1844) Sub family:Eumeninae 24.Hypselobarbus curcuma(Hamilton,1807) Sub family:Labeoninae 25.Labeo rohita(Hamilton-Buchanan,1822)</p>
5	<p>Order:Elopiformes Family:Elopidae 26.Elops machnata(Forsskal,1775) Family:Megalopidae 27.Megalops cyprinoides(Broussonet,1782)</p>
6	<p>Order:Mugiliformes Family:Mugilidae 28.Chelon planiceps(Valenciennes,1836) 29.Moolgarda seheli(Forsskal,1775) 30.Valamugil speigleri(Bleeker,1858) 31.Liza microlepis(Smith,1846) 32. Liza parsia(Hamilton-Buchanan,1822) 33.Mugil cephalus(Linnaeus,1758)</p>
7	<p>Order:Gonorynchiformes Family:Chanidae 34.Chanos chanos(forsskal,1775)</p>
8	<p>Order:Pleuronectiformes Family:Cynoglossidae Sub family: Cynoglossidnae 35.Cynoglossus Cynoglossus(Hamilton-Buchanan,1822) 36.Cynoglossus bilineatus(Lacepede,1802) 37.Cynoglossus punticeps(Richardson,1846) Family:Soleidae 38.Brachirus orientalis(Bloch,Schneider,1801) Family :Paralichthyidae 39.Pseudorhombus arsius(Hamilton-Buchanan,1822) 40.Pseudorhombus javanicus(Bleeker,1853)</p>
9	<p>Order:Scorpaeniformes Family:Platycephalidae 41.Sorsogona tuberculata(Cuvier,1829) 42.Platycephalus indicus(Linnaeus,1758) Family :Dactylopteridae 43.Dactyloptena papilio(Ogilby,1910)</p>
10	<p>Order:Synbranchiformes Family:Mastacembelidae 44.Mastacembelus armatus(Lacepede,1800) 45.Macrogonathus guentheri(Day,1865)</p>
11	<p>Order:Tetraodontiformes Family: Tetraodontidae Sub family: Tetraodontinae 46.Arothron immaculatus(Bloch,1801) 47.Chelonodon patoca(Hamilton-Buchanan,1822) Family:Triacanthidae</p>

	48. <i>Triacanthus brevirostris</i> (Temminck & Schlegel, 1850)		81. <i>Monodactylus argenteus</i> (Linnaeus, 1758) Family: Ambassidae
12	Order: Perciformes Family: Lutjanidae Sub family: Lutjaninae 49. <i>Lutjanus argentimaculatus</i> (Forsskal, 1775) 50. <i>Lutjanus fulviflamma</i> (Forsskal, 1775) 51. <i>Lutjanus kasmira</i> (Forsskal, 1775) 52. <i>Lutjanus russelli</i> (Bleeker, 1849) Family: Carangidae Sub family: Caranginae 53. <i>Carangoides praeuteus</i> (Benneet, 1830) 54. <i>Alepes melanoptera</i> (Swainson, 1839) 55. <i>Atule mate</i> (Cuvier, 1833) 56. <i>Carangoides malabaricus</i> (Bloch & Schneider, 1801) 57. <i>Caranx ignobilis</i> (Forsskal, 1775) 58. <i>Caranx sexfasciatus</i> (Quoy & Gaimard, 1825) 59. <i>Megalaspis cordyla</i> (Linnaeus, 1758) Sub family: Scomberoidinae 60. <i>Scomberoides lysan</i> (Forsskal, 1775) Sub family: Trachinotinae 61. <i>Trachinotus blochii</i> (Lacepede, 1801) Family: Cichlidae Sub family: Etroplinae 62. <i>Etroplus suratensis</i> (Bloch, 1785) 63. <i>Etroplus maculatus</i> (Bloch, 1785) Sub family: Pseudocrenilabrinae 64. <i>Oreochromis mossambicus</i> (Peters, 182) Family: Leiognathidae 65. <i>Leiognathus brevirostris</i> (Valenciennes, 1835) 66. <i>Gazza minuta</i> (Bloch, 1795) 67. <i>Leiognathus dussumieri</i> (Valenciennes, 1835) 68. <i>Leiognathus equulus</i> (Forsskal, 1778) 69. <i>Gazza achlamys</i> (Jordan & Starks, 1917) 70. <i>Secutor insidiator</i> (Bloch, 1787) Family: Gobiidae Sub family: Gobiinae 71. <i>Glossogobius giuris</i> (Hamilton-Buchanan, 1822) Sub family: Gobionellinae 72. <i>Oxyurichthys macrolepis</i> (Bleeker, 1849) 73. <i>Oxyurichthys tentacularis</i> (Valenciennes, 1837) 74. <i>Oligolepis acutipennis</i> (Valenciennes, 1837) Sub family: Amblyopinae 75. <i>Trypauchen vagina</i> (Bloch & Schneider, 1801) Family: Teraponidae 76. <i>Terapon jarbua</i> (Forsskal, 1775) Family: Haemulidae Sub family: Haemulinae 77. <i>Pomadasys maculatus</i> (Bloch, 1793) 78. <i>Pomadasys hasta</i> (Bloch, 1790) Sub family: Plectorhynchinae 79. <i>Plectorhynchus nigrus</i> (Cuvier, 1830) Family: Drepanidae 80. <i>Drepane punctata</i> (Linnaeus, 1758) Family: Monodactylidae		82. <i>Paramabassis thomassi</i> (Day, 1870) 83. <i>Ambassis gynocephalus</i> (Lacepede, 1802) 84. <i>Ambassis ambassis</i> (Lacepede, 1802) 85. <i>Ambassis urotaenia</i> (Bleeker, 1852) Family: Siganidae 86. <i>Siganus javus</i> (Linnaeus, 1766) Sub family: Caesioninae 87. <i>Siganus canaliculatus</i> (Park, 1797) Family: Scatophagidae 88. <i>Scatophagus argus</i> (Linnaeus, 1766) Family: Sillaginidae 89. <i>Sillago sihama</i> (Forsskal, 1775) Family: Gerreidae 90. <i>Gerres filamentosus</i> (Cuvier, 1829) 91. <i>Gerres oyena</i> (Forsskal, 1775) 92. <i>Gerres setifer</i> (Hamilton, 1822) Family: Sphyraenidae 93. <i>Sphyraena jello</i> (Cuvier, 1829) Family: Scombridae Sub family: Scombrinae 94. <i>Rastrelliger kanagurta</i> (Cuvier, 1816) Family: Serranidae 95. <i>Epinephelus tauvina</i> (Forsskal, 1775) 96. <i>Epinephelus malabaricus</i> (Bloch & Schneider, 1801) Sub family: Epinephalinae 97. <i>Epinephelus bleekeri</i> (Vaillant, 1878) 98. <i>Epinephelus lanceolatus</i> (Bloch, 1790) 99. <i>Epinephelus diacanthus</i> (Valenciennes, 1828) Family: Pomacentridae Sub family: Pomacentrinae 100. <i>Abudefduf sordidus</i> (Forsskal, 1775) Family: Stomatidae 101. <i>Pampus argenteus</i> (Euphrasel, 1788) Family: Acanthuridae 102. <i>Acanthurus mata</i> (Cuvier, 1829) Family: Channidae 103. <i>Channa striata</i> (Bloch, 1793) 104. <i>Channa marulius</i> (Hamilton, 1822) Family: Mullidae 105. <i>Upeneus vittatus</i> (Forsskal, 1775) Family: Nandidae 106. <i>Nandus nandus</i> (Hamilton, 1822) Family: Pristolepididae 107. <i>Pristolepis fasciata</i> (Bleeker, 1851) Family: Sciaenidae 108. <i>Johnius coitor</i> (Hamilton, 1822) 109. <i>Johnius dussumieri</i> (Cuvier, 1830) Family: Anabantidae 110. <i>Anabas testudineus</i> (Bloch, 1792) Family: Eleotridae

	<p>Sub family:Eleotrinae 111. <i>Eleotris fusca</i>(Forster,1801) Family :Polynemidae 112. <i>Eleutheronema tetradactylum</i>(Shaw,1804) Family:Chaetodontidae 113. <i>Heniochus acuminatus</i>(Lennaeus,1758) Family:Lethrinidae Sub family:Lethrininae 114. <i>Lethrinus reticulatus</i>(Valenciennes,1830)</p>
13	<p>Order:Silluriformes Family:Bagridae 115. <i>Mystus gulio</i>(Hamilton,1822) 116. <i>Mystus keletius</i>(Valenciennes,1840) 117. <i>Mystus malabaricus</i>(Jerdon,1849) 118. <i>Mystus oculatus</i>(Valenciennes,1940) Family:Horabagridae 119. <i>Horabagrus brachysoma</i>(Gunther,1864) Family:Ariidae Sub family :Ariinae 120. <i>Arius maculatus</i>(Thunverg,1792) 121. <i>Arius subrostratus</i>(Valenciennes,1840) 122. <i>Nemapteryx caelata</i>(Valenciennes,1840) 123. <i>Plicofolis dussumierii</i>(Valenciennes,1840) 124. <i>Plicofolis platystoma</i>(Day,1877) Family:Silluridae 125. <i>Wallago attu</i>(Bloch &Schneider,1801)</p>

20	<i>Caranx sexfasciatus</i>	LC
21	<i>Channa marulius</i>	LC
22	<i>Channa striata</i>	LC
23	<i>Chanos chanos</i>	NE
24	<i>Chelon planiceps</i>	NE
25	<i>Chelonoden patoca</i>	LC
26	<i>Congresox talabonoides</i>	NE
27	<i>Cynoglossus bilineatus</i>	NE
28	<i>Cynoglossus cynoglossus</i>	NT
29	<i>Cynoglossus puncticeps</i>	NE
30	<i>Dactylopterus papilio</i>	NR
31	<i>Drepane punctata</i>	NE
32	<i>Dussumieria hasseltii</i>	NR
33	<i>Eleotris fusca</i>	LC
34	<i>Eleutheronema tetradactyla</i>	NR
35	<i>Elops machnata</i>	LC
36	<i>Epinephalus bleekeri</i>	NT
37	<i>Epinephalus lanceolatus</i>	VU
38	<i>Epinephalus malabaricus</i>	NT
39	<i>Epinephalus tauvina</i>	DD
40	<i>Epinephelin dracanthus</i>	NR
41	<i>Esculosa thoracata</i>	NE
42	<i>Etroplus maculates</i>	LC
43	<i>Etroplus suratenesis</i>	LC
44	<i>Gazza achlamys</i>	LC
45	<i>Gazza minuta</i>	LC
46	<i>Gerris setifer</i>	NE
47	<i>Gerres filamentosus</i>	LC
48	<i>Gerres oyena</i>	LC
49	<i>Glossobius giuris</i>	LC
50	<i>Heniochus acuminatus</i>	LC
51	<i>Horabagrus brachysoma</i>	VU
52	<i>Hyporhamphus quoyi</i>	NE
53	<i>Hyporhamphus xanthopterus</i>	VU
54	<i>Hypselobarbus curmuca</i>	EN
55	<i>Johnius coitor</i>	LC
56	<i>Johnius dussumieri</i>	NR
57	<i>Labeo dussumieri</i>	NE
58	<i>Labeo rohita</i>	LC
59	<i>Leiognathus brevirostris</i>	NE
60	<i>Leiognathus dussumieri</i>	Not yet been assessed
61	<i>Leiognathus equulus</i>	LC
62	<i>Lethrinus reticulates</i>	LC

Table 2: IUCN Status of Collected Fishes from Kayamkulam Backwater

Sl. No.	Species Name	Conservation Status
1	<i>Abudefduf sordidus</i>	NE
2	<i>Acanthopagrus berda</i>	NE
3	<i>Acanthurus mata</i>	LC
4	<i>Alepes melanoptera</i>	NE
5	<i>Ambassis ambassis</i>	LC
6	<i>Ambassis gymnocephalus</i>	LC
7	<i>Ambassis urolaenia</i>	NR
8	<i>Anabas testudineus</i>	DD
9	<i>Anguilla Anguilla</i>	CR
10	<i>Anguilla bicolor</i>	NT
11	<i>Anodontostoma chancunda</i>	NE
12	<i>Arius maculates</i>	NE
13	<i>Arius subrostratus</i>	NE
14	<i>Arothron immaculatus</i>	LC
15	<i>Atule mate</i>	NE
16	<i>Brachirus orientalis</i>	NE
17	<i>Carangoides malabaricus</i>	NR
18	<i>Carangoides praeutus</i>	NR
19	<i>Caranx ignobilis</i>	NE

63	<i>Liza macrolepis</i>	NR
64	<i>Liza parsia</i>	NE
65	<i>Lutjanus argentimaculatus</i>	NE
66	<i>Lutjanus fulviflamma</i>	NE
67	<i>Lutjanus kasmira</i>	NE
68	<i>Lutjanus russelli</i>	NT
69	<i>Macrogathus guentheri</i>	LC
70	<i>Mastacembelus armatus</i>	LC
71	<i>Megalops cordyla</i>	NR
72	<i>Megalops cyprinoides</i>	DD
73	<i>Monodactylus argentius</i>	NE
74	<i>Moolgarda seheli</i>	NE
75	<i>Mugil cephalus</i>	LC
76	<i>Mystus gulio</i>	LC
77	<i>Mystus keletius</i>	LC
78	<i>Mystus malabaricus</i>	NT
79	<i>Mystus ocellatus</i>	LC
80	<i>Nandus nandus</i>	LC
81	<i>Nemapteryx caelata</i>	NE
82	<i>Nematolasa nasus</i>	LC
83	<i>Oligolepis acutipennis</i>	VU
84	<i>Ophichthus altipinnis</i>	LC
85	<i>Oreochromis mossambicus</i>	NT
86	<i>Oxyurichthys microlepis</i>	NE
87	<i>Oxyurichthys tentacularis</i>	NE
88	<i>Pampus argentius</i>	NE
89	<i>Parambassis thomassi</i>	LC
90	<i>Plectorhynchus nigrus</i>	NR
91	<i>Pellona ditchela</i>	NE
92	<i>Platycephalus indicus</i>	DD
93	<i>Plicofolis dussumieri</i>	LC
94	<i>Plicofolis platystomus</i>	NR
95	<i>Pomadasys hasta</i>	NR
96	<i>Pomadasys maculatus</i>	LC
97	<i>Pristolepis fasciata</i>	NR
98	<i>Pseudorhombus arsius</i>	NE
99	<i>Pseudorhombus javanicus</i>	NE
100	<i>Puntius filamentosus</i>	NR
101	<i>Puntius mahecola</i>	DD
102	<i>Rastrelliger kanagurta</i>	DD
103	<i>Sardinella longiceps</i>	LC
104	<i>Scatophagus argus</i>	LC
105	<i>Scombroides lysan</i>	NE
106	<i>Secutor insidiator</i>	NE

107	<i>Siganus canaliculatus</i>	NE
108	<i>Siganus javus</i>	NE
109	<i>Sillago sihama</i>	NE
110	<i>Sorsogona tuberculata</i>	NE
111	<i>Spyraena jello</i>	NE
112	<i>Stolephorus commersonii</i>	NE
113	<i>Stolephorus indicus</i>	NR
114	<i>Tenualosa reevesii</i>	NE
115	<i>Terapon jarbua</i>	LC
116	<i>Thyrssa malabarica</i>	NR
117	<i>Thyrssa mystax</i>	LC
118	<i>Thyrssa setirostris</i>	NR
119	<i>Trachinotus blochi</i>	NE
120	<i>Tricanthus brevirostris</i>	NR
121	<i>Trypauchen vagina</i>	NE
122	<i>Upeneus vittatus</i>	NE
123	<i>Valamugil speigleri</i>	NE
124	<i>Wallago attu</i>	NT

NE-Not evaluated, LC-Least concern, NR-Not entered in the IUCN red list, NT-Near threatened, VU-Vulnerable, DD-Data deficient, CE-Critically endangered, EN-Endangered

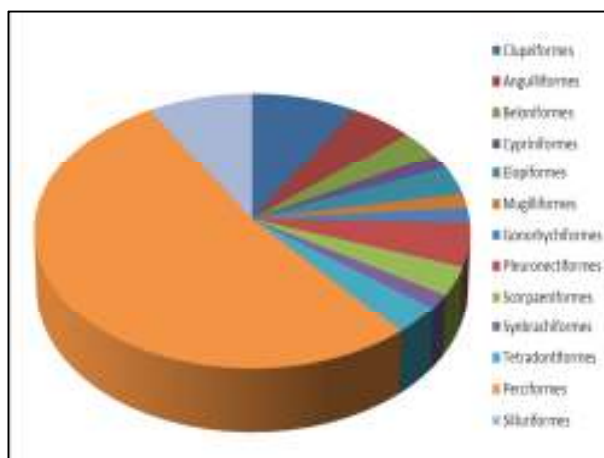


Figure 1: Percentage composition between different orders

DISCUSSION

Biodiversity is essential for stabilization for ecosystem and production of overall environmental quality for understanding intrinsic worth of all species on the earth (Ehrlich and Wilson,1991).Fish diversity essentially represents the fish faunal diversity and the abundance .Fishes are the key stone 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 ecosystem (Moyle and Leidy, 1992). In the present ichthyofaunal, 125 species of 57 families and 13 orders were recorded from the study area during the period, February 2016 – July 2016. The general pattern of distribution and abundance has been reported from other lakes also (Stephens *et al.*, 1974; Allen and Horn, 1975; Stephenson and Dredge, 1976). While assessing the threat status of these fishes according to the IUCN red list status some species are included in the list of least concern some are not evaluated some others are critically endangered and others are vulnerable. Similar studies were also reported from Chalakkudy river (Raghavan *et al.*, 2008) Periyar tiger reserve (Radhakrishnan & Kurup, 2010) and by Ali *et al.* (2011). The informations collected from the fisherman and local people also show that the number and species of fishes in Kayamkulam back water is decreasing year after year. This may be due to the pollution of the water body with domestic wastes and waste water. Previous studies on the fresh water fish fauna of Kerala are those of Kurup (1994), Easa and Shaji (1995), Biju *et al.* (2008), Radhakrishnan & Kurup, (2010) and by Ali *et al.*

CONCLUSION

The fish fauna of this lake are being threatened due to several anthropogenic activities including introduction of exotic fish species, habitat degradation, pollution, irrational fishing. Due to different anthropogenic activities the fish diversity of this water body is in declining mode. To conserve this inherent treasure of Ashtamudi lake, the wetland of international importance, a long term management plan should be adopted. Effective implementation on the regulation on mesh size and fishing gear is much needed to prevent over exploitation. Strict management measures with large public awareness would be essential to save the fish germplasm and its time to make proper policies and take

necessary actions to improve conservation measures so that the future generations get the fish live on the earth rather than the photographs in the literature. This study would serve as a frame of reference for future initiatives in studying fish biodiversity and conservation management.

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