

# FISH DIVERSITY IN THE KANJIRACODE KADAVU LAKE, KOLLAM (KERALA)

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## ABSTRACT

The fish samples for the present study were collected from the Kanjiracode Kadavu Lake, Kollam during September 2017 to February 2018. A total of 19 species belonging to 18 families and 19 genera were collected from the study area during the present study. Diversity of fishes and threats to the fauna are discussed

Key words: Thevally kadavu, fish diversity, threats.

## INTRODUCTION

Fishes, one of the important component in the aquatic ecosystem and plays a significant role in the economy. The tropical aquatic system bestowed with diverse fish species . They occupy a significant position in the socio – economic fabric of the south Asian countries by providing the population not only the nutrients food but also income and employment opportunities.

Forty per cent of the total catch of fishes in India is obtained from the Kerala State. An expert committee constituted by the Govt. of Kerala has strongly advocated transformations of the backwaters, reservoirs, lakes, ponds ,tanks etc in to fish farms. Information on the abundance and distribution of fishes forms the basic step in assessing the fishery resources and their management in aquatic biotopes. A comprehensive survey of the fishery resources of the lakes, rivers etc of Kerala has become essential for the effective management, planned exploitation and scientific conservation of these highly productive water bodies.

India is endowed with a vast expanse of open inland waters in the form of rivers, canals, estuaries, natural and man made lakes, back waters, mangrove wetlands. Potentially, the inland fish

resources of India are the richest in the world. In terms of production too, India ranks second in the world, only China being ahead of her.

The backwaters and the adjoining coastal waters are one of the richest areas of fishery resources in India. They form permanent or temporary habitats for several species as nurseries. Optimum utilization of these resources can lead to many fold increase in inland fish production, earning the country a place among the top inland fish production nations of the world. One of the threats to these natural resources is pollution due to industrialization and other anthropogenic activities.

Kerala is blessed with a comparatively extensive brackish water and estuarine system. Kerala is one of the smallest state in Indian peninsula as an area of 38,855 square Kilometers and a coast line of 590 km lying between north latitude  $8^{\circ} 18'$  and  $12^{\circ} 48'$  and longitude  $74^{\circ} 52'$  and  $72^{\circ} 22'$ , Kerala's inland water wealth is composed principally of 41 west flowing and 3 east flowing rivers, 30 high altitude reservoirs, 30 brackish water perennial or temporary estuaries etc. a chain of backwaters, running almost the length of the state, extending over 375 km is characteristic feature of Kerala. All these water bodies offer excellent possibilities of fish culture on a large scale.

## MATERIALS AND METHODS

The present work was carried out in the Kanjiracodu kadavu lake (Kollam District) during September 2017 to February 2018. Kanjiracodu kadavu lake is the famous lake at the south east end of the Ashtamudi lake and lies between latitudes  $8^{\circ} 52'$  and  $8^{\circ} 60' N$  and longitudes  $76^{\circ} 30'$  and  $76^{\circ} 40' E$ . The area of this lake is about 3.75 sq.km. The Ashtamudi estuary is a tropical back water habitat in the Kollam district of Kerala, situated on the south west coast of India along the Arabian Sea. This estuary is one of the foremost centers of marine fish production and landings along the Kerala coast (Thressiama and Nair 1980) and receives much attention due to its rich and varied fishery resources and an annual production of 23000 of fish (Kurup and Thomas 2001).

The fishes were collected at monthly intervals from Kanjiracodu kadavu with the help of local fishermen using different types of nets, viz. cast net and gill net. The samples were also collected from nearby fish landing centre. After noting down the colour and other morphological

features the specimens were preserved in 10% formalin solution. The fishes were identified up to the species level using standard keys by Jayaram,1999 ; Talwar and Jhingran,1991.

The physical features of the habitat were qualitatively assessed. The Physico-chemical parameters were analyzed using methods described by Welch and APHA. The pH was determined using an electronic pH meter, turbidity by turbidity meter, transparency with a Secchi disc.

## RESULTS AND DISCUSSION

A total of 19 species belonging to 18 families and 19 genera were collected from the study area during the present study. A classified list of species along with their status of occurrence is given in Table 1. Marine elements dominate the fish diversity in Thevally kadavu which could be justified by the fact that backwater is permanently connected to the sea and salinity is high throughout the year (Divakaran et al. 1982). It has been observed in other estuaries of India that marine fishes migrate into the estuarine system when the hydrobiological conditions are favourable (Sinha et al, 1996). According Jhingran (1991) temperature and salinity are the major factors determining the distribution of fishes in estuaries.

It was found that most of the species such as *Etroplus suratensis*, *Etroplus maculatus*, *Mugil cephalus*, *Gerres filamentosus*, *Saccobranthus fossilis*, were uniformly occurred throughout the study period.

The species *Anabas scandens* were observed in the months of September to February except November and December. The species *Caranx carangus* were observed in the months of September to December. The species *Channa striatus* were observed in the months of September and December. The species *Clarias batrachus* and *Hemirhamphus limbatus* were mostly observed in the months of December and January. Species such as *Equula duara*, *Nandus marmoratus*, *Scatophagus argus*, *Synaptura orientalis* are found in the months of September and October. The species *Silago vincenti*, *Terapon jarbua* were observed in the months of November to February. The other identified species include *Anabas scandens*, *Arius nenga*, *Caranx carangus*, *Channa striatus*, *Clarias batrachus*, *Cynoglossus macrostomas*, *Equula daura*, *Hemirhamphus limbatus*,

*Nandus marmoratus*, *Glossogobius giuris*, *Puntis filamentosus*, *Scatophagus argus*, *Silago vincenti*, *Synaptura oreintalis*, *Tearpon jarbua*.

The Ichthyofaunal diversity of Thevally kadavu was less compared to other lakes in Kerala (Chacko ,1948., Swarp and Singh 1979., Thomas et al 1980 ).

The water quality of this lake has been found to be gradually deteriorating because of the influence of retting of coconut husk, mechanized fishing, sewage disposal etc. This is causing the mortality of aquatic fauna especially fishes in the estuary.

New projects have to be put forwarded for the regeneration of the Kanjiracodu Kadavu. For increasing fishery wealth in Kanjiracodu Kadavu lake proper steps should be taken to ban unscientific fishing methods, pollution, sand mining, retting o coconut husk etc. Introduction of fingerlings will have to be encouraged by the authority concerned. The following strategies are recommended for the conservation of fisheries in this lake.

1. Detailed biological investigation on species composition.
2. Fishing must be controlled during their breeding season.
3. Strict monitoring of the water quality must be done to prevent pollution.
4. Awareness programmes should be conducted to make the local people aware of the necessity for the conservation of the lake and its unique fish fauna.

## REFERENCES

APHA, 1976. Standard Methods for the examination of water and waste water (14<sup>th</sup> Edn.).

American Public Health Association. Washington.

Chacko, P.I. 1948. Development of fisheries of the Periyar lake J.Bombay Nat.Hist.Soc.96(1): 82-87.

Divakaran, O .M. Arunchalam,Nair ,N. B. and Balasubramania, N .K. 1982. Seasonal variation of zooplankton of the Ashtamudi estuary, south west coast of India. Mahasagar. Bulletin of the National Institute of Oceanography 1 (1) : 43-50.

- Jayaram, K.C. 1999. The fresh water fishes of the Indian Region, Nareendra publ. House, Delhi, 551 pp+XVIII pI.
- Jhingran ,V.G. 1991. Fish and fisheries of India. Third edition. Hindustan publ. co. India, Delhi, 727 pp.
- Kurup, B.M. and Thomas, K.V . 2001. Fishery resources of the Ashtamudi estuary. Technical Report No. 14.ASR Ltd, *Marine and freshwater consultants Hamilton, New Zealand and center for earth sciences studies, Thiruvananthapuram, India.*
- Thomas, P.A., Abraham, T. and Abraham,G.K. 1980. Preliminary report on the fish fauna of Sasthamcotta lake. Proc.Symp.Environment. Biol.8-13.
- Sinha and Nandan, D .S. 1996. A preliminary survey of the fishery resource of the Ashtamudi. Estuatrine system. Ecology of Indian estuaries XI. Fisher, Technol, 20, 75-83.
- Talwar, P. K. and Jhingran, A. G. 1991. Inland fishes of India and adjacent countries vol. 1&2; Oxford & I.B.H. publishing company. New Delhi.
- Thresiamma, M. and Nair, N.B. 1980. Phytoplankton of the Ashtamudi estuary, Kerala. *Indian Journal of Marine Sciences*, 9: 253-257pp.
- Welch, P .S .1948. Limnological methods.The Blackiston Dir.Philadelphia.

Table 1: Monthly incidence of fish fauna at Kanjiracodu kadavu from September 2017 to February 2018

Sl.No	Species	Sep	Oct	Nov	Dec	Jan	Feb
1	<i>Anabas scandens</i>	+	+	-	-	+	+
2	<i>Arius nenga</i>	-	-	+	+	+	+
3	<i>Caranx carangus</i>	+	+	+	+	-	-
4	<i>Channa striatus</i>	+	+	-	-	+	-
5	<i>Clarias batrachus</i>	-	-	-	+	+	+
6	<i>Cynoglossus macrostomus</i>	+	+	-	-	-	-
7	<i>Equula daura</i>	+	+	-	-	+	-
8	<i>Etroplus maculatus</i>	+	+	+	+	+	+
9	<i>Etroplus suratensis</i>	+	+	+	+	+	+
10	<i>Gerres filamentosus</i>	+	+	+	+	+	+
11	<i>Glossogobius giuris</i>	-	+	+	+	-	-
12	<i>Hemiramphus limbatus</i>	-	-	-	+	+	-
13	<i>Mugil cephalus</i>	+	+	+	+	+	+
14	<i>Nandus marmoratus</i>	+	+	+	+	+	-
15	<i>Puntius filamentous</i>	+	-	-	+	+	+
16	<i>Saccobranchus fossilis</i>	+	+	+	+	+	+
17	<i>Scatophagus argus</i>	+	+	+	-	-	-
18	<i>Silago vincenti</i>	-	-	+	+	+	+
19	<i>Synptura orientlais</i>	+	+	+	-	-	-
20	<i>Terapon jarbua</i>	+	-	+	+	+	+

( + Present , - Absent )