



Rec. zool. Surv. India : 103 (Part 1–2) : 83-89, 2004

THE FISHES OF THE KOLLERU LAKE, ANDHRA PRADESH, INDIA WITH COMMENTS ON THEIR CONSERVATION

R. P. BARMAN

Zoological Survey of India, FPS Building, Kolkata-700 016, India

INTRODUCTION

Kolleru Lake is one of the National wetlands and the largest freshwater lakes of our country. Wetlands are very important productive ecosystems and their socioeconomic values are well established. Moreover, the riverine fishes use wetlands as their breeding grounds. In addition to these, this lake has been found to contain some threatened species of fishes, which needs to be conserved to protect them from extinct in near future. Considering these facts an attempt has been made to estimate the Fish resources of this lake. This work is based primarily on the fish collections from this lake by the author (Barman, 1993) in addition to the fishes recorded from this lake following the works of Chacko *et al.* (1952) and Dutt & Murthy (1971 & 1976). This Lake has been found to contain 51 freshwater fish species belonging to 35 genera, 21 families and 9 orders. A review on the fishes of this lake shows that it contains 4 endangered, 11 vulnerable and 1 rare species following the works of Molur and Walker (1998) and Menon (1999) as per the guidelines and criteria provided by the IUCN for determining the threatened species. Almost all the fishes of this lake are commercially important. Since this lake contains some important commercial fishes and 16 threatened species, it has been suggested for conservation specially to protect the threatened species and to maintain its biodiversity of the fishes as a whole.

TOPOGRAPHY

The Lake Kolleru is a natural depression with an average depth of 1 metre and a maximum depth of 3 metres during the southwest monsoon, in the coastal belt between the deltas of the river Godavari to the east and Krishna to the west. It is located partly in Krishna and West Godavari districts of Andhra Pradesh. The Eluru canal (irrigation canal) connects these two rivers

to the north of this lake and the Bay of Bengal passes to its southwest side. This lake has an area of almost 250 sq. km. Four major streams, viz., Budameru, Thammileru, Ramileni and Gunderu and several irrigation channels open into this lake, carrying a considerable amount of silt in this lake. The Bay of Bengal is 32 km. away and is connected to this lake by one outlet, named Upputeru. This lake is a low-lying swamp type with almost 85% freshwater dominance. Although the lake is connected with the Bay of Bengal through Upputeru, the tidal waters do not enter into the lake proper, so the freshwater fishes can thrive there well.

SYSTEMATIC ACCOUNT OF THE FISHES OF THE KOLLERU LAKE

The classification of Greenwood *et al.*, (1966) and Menon (1999) is followed here in listing the fishes of this lake as follows :

Order I ANGUILLIFORMES

Family 1 ANGUILLIDAE

1. *Anguilla bengalensis* (Gray and Hardwicke) (**Endangered species**)

Order II CLUPEIFORMES

Family 2 CLUPEIDAE

2. *Gudusia chapra* (Hamilton)

Order III OSTEOGLOSSIFORMES

Family 3 NOTOPTERIDAE

3. *Notopterus notopterus* (Pallas)

Order IV CYPRINIFORMES

Family 4 CYPRINIDAE

4. *Salmostoma clupeoides* (Bloch)
5. *Amblypharyngodon mola* (Hamilton)
6. *Chela laubuca* (Hamilton)
7. *Danio devario* (Hamilton)
8. *Esomus danricus* (Hamilton)
9. *E. thermoicos* (Valenciennes)
10. *Parluciosoma daniconius* (Hamilton) (= *Rasbora daniconius*)

11. *Thynnichthys sandkhol* (Sykes) (**Rare & Endemic species**)
12. *Osteobrama cotio cotio* (Hamilton)
13. *Rohtee ogilbii* Sykes (**Vulnerable & Endemic species**)
14. *Barbodes sarana sarana* (Hamilton) (= *Puntius sarana sarana*) (**Vulnerable species**)
15. *Hypselobarbus dobsoni* (Day) (= *Puntius dobsoni*) (**Endangered & Endemic species**)
16. *Puntius chola* (Hamilton) (**Vulnerable species**)
17. *P. sophore* (Hamilton)
18. *P. ticto* (Hamilton)
19. *Catla catla* (Hamilton)
20. *Cirrhinus mrigala* (Hamilton)
21. *C. reba* (Hamilton) (**Vulnerable species**)
22. *Labeo bata* (Hamilton)
23. *L. calbasu* (Hamilton)
24. *L. fimbriatus* (Bloch)
25. *L. rohita* (Hamilton)

Family 5 COBITIDAE

26. *Lepidocephalus guntea* (Hamilton)

Order V SILURIFORMES

Family 6 BAGRIDAE

27. *Mystus bleekeri* (Day) (**Vulnerable species**)
28. *M. cavasius* (Hamilton)
29. *M. gulio* (Hamilton)
30. *M. vittatus* (Bloch) (**Vulnerable species**)

Family 7 SILURIDAE

31. *Ompok bimaculatus* (Bloch) (**Endangered species**)

Family 8 SCHILBEIDAE

32. *Pseudeutropius atherinoides* (Bloch) (**Endangered species**)

Family 9 CLARIIDAE

33. *Clarias batrachus* (Linnaeus) (**Vulnerable species**)

Family 10 HETEROPNEUSTIDAE

34. *Heteropneustes fossilis* (Bloch) (**Vulnerable species**)

Order VI ATHERINIFORMES

Family 11 BELONIDAE

35. *Xenentodon cancila* (Hamilton)

Family 12 CYPRINODONTIDAE

36. *Aplocheilus panchax* (Hamilton)

Order VII CHANNIFORMES

Family 13 CHANNIDAE

37. *Channa marulius* (Hamilton)
38. *C. orientalis* Bloch & Schneider (**Vulnerable species**)
39. *C. punctatus* (Bloch)
40. *C. striatus* (Bloch)

Order VIII SYNBRANCHIFORMES

Family 14 SYNBRANCHIDAE

41. *Ophisternon bengalense* McClelland

Order IX PERCIFORMES

Family 15 CENTROPOMIDAE (= CHANDIDAE)

42. *Pseudambassis ranga* (Hamilton) (= *Chanda ranga*)

Family 16 NANDIDAE

43. *Nandus nandus* (Hamilton)

Family 17 CICHLIDAE

44. *Etroplus maculatus* (Bloch)
45. *E. suratensis* (Bloch)

Family 18 GOBIIDAE

46. *Glossogobius giuris* (Hamilton)

Family 19 ANABANTIDAE

47. *Anabas cobojius* (Hamilton) (**Vulnerable species**)
48. *A. testudineus* (Bloch) (**Vulnerable species**)

Family 20 BELONTIDAE

49. *Polycanthus fasciatus* (Bloch & Schneider)

Family 21 MASTACEMBELIDAE

50. *Macrognaathus aral* (Bloch & Schneider)

51. *M. pancalus* (Hamilton)

DISCUSSIONS & CONSERVATION

The Lake Kolleru is one of the very important freshwater lakes and National wetlands of India. Many riverine important edible fishes utilize this wetland for their breeding grounds. The presence of juvenile specimens of almost all the fishes especially the carps in this lake indicates that these fishes use this water body as their spawning grounds. Since this lake is distantly connected with the Bay of Bengal through Upputeru often some marine fishes are also found in the fish fauna of this lake. Among the important commercial fishes of this lake *Anabas testudineus*, *Heteropneustes fossilis* and *Labeo rohita* are abundantly found throughout the year. This lake also has been found to contain 3 endemic species of our country. *Rohtee ogilbii* of this lake is a vulnerable and endemic fish species of our country. This species is found only in the two important south Indian waters of the river Godavari and Krishna. *Hypselobarbus dobsoni* is an endangered and endemic species in India. It has been recorded in the south Indian waters of the Rivers Krishna and Cauvery, and in the Anaimalai Hill drainages. *Thynnichthys sandkhol* is a rare and endemic fish species of India, found in the south Indian waters of the river Gadavari and Krishna only. Since these commercially important vulnerable, endangered and rare fish species are already in danger of extinction due to over exploitation, habitat destruction and other external factors, their protection and conservation measures should be taken immediately to save them from extinction.

To protect and conserve the fish resources along with its vulnerable, endangered and rare fish species of the Lake Kolleru the following measures may be undertaken :

- (1) Indiscriminate fishing by means of fixed engines should be stopped.
- (2) Restrictions on the use of certain nets during the specified times of the year from April to June (*i.e.*, closed season) as well as mesh size (usually the minimum mesh size of the nets permitted is 25 mm. in the Indian waters).
- (3) Restrictions on the capture and sale of legal sizes of fry and fingerlings of major carps to protect the juveniles of the fishes.
- (4) All types of landscapes alterations must be controlled and use of herbicides and insecticides also to be prohibited in and around this lake.

- (5) Mass awareness campaign should be organized to educate about the significance of the conservation of the fishes in their areas. Since the local fishermen and the people surrounding this lake are in constant contact with this wetland, they should be told that they are the real custodian of the flora and fauna of this Kolleru Lake. Destruction, shrinkage and misuses of this wetland will definitely create their socioeconomic problems due to the fact that the degradation of the wetlands with their rich faunal diversity throughout our country is already alarming.

SUMMARY

The fishes of the Lake Kolleru have been reviewed following the works of Molur & Walker (1998) and Menon (1999). This shows that it contains some very important commercial fishes in addition to 11 vulnerable species, viz., *Rohtee ogilbii*, *Barbodes sarana sarana*, *Puntius chola*, *Cirrhinus reba*, *Mystus bleekeri*, *Mystus vittatus*, *Clarias batrachus*, *Heteropneustes fossilis*, *Channa orientalis*, *Anabas cobojius*, and *Anabas testudieus*, 4 endangered species, viz., *Anguilla bengalensis*, *Hypselobarbus dobsoni*, *Ompok bimaculatus* and *Pseudeutropius atherinoides* and 1 rare species, viz., *Thynnichthys sandkhol*. Considering the presence of these vulnerable, endangered and rare species, this Lake has been suggested for conservation measures.

ACKNOWLEDGEMENTS

I thank Dr. J. R. B. Alfred, Director and Dr. S. K. Chanda, Deputy Director, Zoological Survey of India, Kolkata for necessary facilities. Thanks are also due to the Commissioner of Fisheries, Govt. of Andhra Pradesh, Hyderabad and the Assistant Director of Fisheries, Kolleru Lake for assistance and cooperation.

REFERENCES

- Barman, R. P. 1993. Fauna of Andhra Pradesh, Part-I : Fishes. State Fauna Series 5 : 89-334. Zoological Survey of India publications, Govt. of India.
- Chacko, P. I., Abraham, J. G. and Andal, R. 1952. Survey of the flora, fauna and fisheries of the Collair Lake. *Indian Com. J.*, 8 : 274-280.
- Dutta, S. and Murthy, V. S. 1971. On the fishes of the genus *Cirrhinus* Cuvier, 1917 (Family : Cyprinidae) from Lake Kolleru, Andhra Pradesh. *Bull. Dept. Biol. Oceanogr. Univ. Cochin*, 5 : 39-48.
- Dutta, S. and Murthy, V. S. 1976. On the fish and fisheries of Lake Kolleru, Andhra Pradesh. *Mem. Soc. zool. Guntur*, 1 : 17-27.

- Greenhood, P. H., Rosen, D. E., Weitzman, S. H. and Myers, G. S. 1966. Phyletic studies of teleostean fishes with a provisional classification of living forms. *Bull. Amer. Mus. Nat. Hist.*, **131** : 339-456, pls. 21-23.**
- Menon, A. G. K. 1999. Checklist of the Freshwater Fishes of India. *Rec. zool. Surv. India, Occ. Paper No. 175*, pp. 366. Zoological Survey of India, Govt. of India.**
- Molur, S. and Walker, S. (eds.). 1998. Report of the workshop "Conservation Assessment and Management Plan for Freshwater Fishes of India", Zoo Outreach Organization, Conservation Breeding Specialist Group, India, Coimbatore, India, 156 p.**