FISHES OF CHEMBARAMPAKKAM LAKE – A WETLAND IN THE OUTSKIRTS OF CHENNAI

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Abstract

Wetlands that are in the neighborhood of cities are facing the brunt of development. A few wetlands however continue to maintain their ecological integrity and thus serve as refuges of local biodiversity. In this paper the results of a brief study of fishes in Chembarampakkam Lake in the outskirts of Chennai is presented. Thirty-two species were identified and a few species including the exotic Gouramy Trichogaster trichopterus *has been reported for the first time.*

Keywords

Chembarampakkam, Chennai, exotic species, freshwater fish, India, urban wetlands

Wetlands in the neighborhood of mega-cities provide a number of services of city dwellers including water storage, groundwater recharge, moderating local climate and offering recreation. Nevertheless, with the exception of those lakes and reservoirs that provide drinking water, most others suffer abuse of encroachment and pollution due to organic and inorganic waste disposal. Chennai has had a wealth of natural and manmade wetlands, both within its limits and in the outskirts that have contributed immensely to the rich biodiversity of the landscape. While many of these have been lost to development, a few are still more or less intact offering refuge to some of Chennai's historically known species of plants and animals. Chembarampakkam, a large lake in the outskirts of Chennai, is one such example.

Study area

The Chembarampakkam Lake is a large reservoir built across river Adayar at about 25km southwest of the Madras Beach. The total area of the catchment is 357km^2 with bunds running about 9km around the Lake (Raghunanthan, 1978). Once a major source of drinking water, the Lake is more or less dry during summer offering little water for safe human consumption. The Lake however continues to provide irrigation to cultivators in its neighborhood. Being managed by the Public Works Department, Chembarampakkam is free of encroachment.

Although a lake by simple definition, Chembarampakkam offers a number of wetland habitats as it dries up during summer. First there is an extensive open water that is deep. Along the margins, where earth has been quarried, there are smaller temporary pools supporting quite dense growth of *Hydrilla* and *Utricularia*. Elsewhere, the water flows as small streams towards the sluice gates and beyond creating smaller ponds with water lillies and emergent vegetation including *Cyperus* spp. and *Ipomoea carnea*. These rather distinct microhabitats have together enriched the lake's biodiversity.

The study was limited to fish although there are a number of aquatic birds reported from the Lake. In fact the Madras Naturalists Society that has been visiting and studying birds in the lake have recommended the inclusion of Chembarampakkam in the Important Bird Areas list being compiled by the Bombay Natural History Society.

Methods

We report here fishes that were collected during two visits in May 2003. Fishes were collected with the help of local fishermen using small hand-operated dragnets. Fishes that were collected were identified with the help of Talwar and Jhingran (1991) and Daniels (2002). Nomenclature and classification adopted are after Daniels (2002).

Results and Discussion

Thirty-two species of fishes were collected during the two visits (Table 1). Since our sampling covered only two of the at least five microhabitats observed during our visits, we presume that the fishes caught represented only a fraction of the diversity of fishes in the lake. Many species of larger fishes including major carps that are cultured were not caught. Fishes that dwell in the bottom and within crevices were also poorly represented in our samples suggesting that there could be between 40 and 50 species of fishes in the Chembarampakkam Lake, if not more.

Despite the proximity to Chennai, the fishes of the Lake have been rather poorly studied. During the early 1900s Raj (1916) enumerated the freshwater fishes of Madras providing notes on their taxonomy and Natural history. He listed nearly 60 species of fishes providing information on their distribution. Interestingly, only one species *Mystus cavasius,* a catfish is listed specifically as 'common' in Chembarampakkam Lake. This Lake does not feature anywhere else in his early publication.

Subsequently in the 1970s, Venkateswarulu *et al*. (1975) published a list of fishes including marine species along with reptiles and amphibians known from the vicinity of Madras. This paper does not however provide specific details of the occurrence and distribution of fishes. Further, there is no map or description provided in the publication that gives some clue to the total area that was considered as 'Chennai and its vicinity'. Probably, the only published study that specifically focused on the fishes of Chembarampakkam is that of Raghunathan (1978). This study that spanned a period of 10 months during the years 1973 and 1974 reported 19 species. With the exception of *Macrognathus aral, Gambusia affinis, Colisa fasciata* and *Lepidocephalus thermalis* reported by Raghunathan, all species were collected during the present study (Table 1).

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Most recently, representatives of the Madras Naturalists Society (MNS) compiled a list of fishes of the Lake based on their study in March 2002. This study that was sponsored by the Government of India through the Salim Ali Centre for Ornithology and Natural History and coordinated by Care Earth, was part of a larger project that identified wetlands of conservation value throughout Tamil Nadu. The list provided by MNS contained 39 species (S. Jayasankar & T. Murugavel, unpublished data). However, since the list was largely the result of discussions with local fishermen and that only a few species were actually collected, the specific identity provided need to be validated. For example, species such as *Anguilla bicolor, Garra mcclellandi, Puntius parrah, Puntius carnaticus* and *Silonia childreni* are for sure unlikely in the Lake. The recent updated checklist of the fishes of the Eastern Ghats published by Devi and Indra (2003) does not include these species. While Chembarampakkam is not strictly part of the Eastern Ghats, it is in close vicinity and should possibly share the fish fauna. Other species listed by Jayasankar and Murugavel that we feel are unlikely in Chembarampakkam include *Danio aequipinnatus, Barilius bendelisis* and *Aplocheilus lineatus*. Except *Barilius bendelisis* that Venkateswaralu *et al.* (1975) have listed from the Madras vicinity, there is no evidence, including those published, of the other two species occurrence anywhere around Chennai.

From the two-day study of the Chembarampakkam Lake that we undertook in May 2003 it is evident that cyprinid fishes are the most diverse in this wetland (Table 1). Amongst the introduced (exotic) species, we found *Oreochromis mossambica* (Tilapia) to be quite frequent although we did not find *Gambusia affinis* that was reported earlier by Raghunathan (1978) – the 'Mosquito Fish' that is abundant in most wetlands in and around Chennai. Incidentally, Raj (1916) had not reported Tilapia and Mosquito Fish from Chennai.

Three species of non-native fishes not reported by earlier studies that we found as 'frequent' in our catches include *Lepidocephalus guntea,* a Loach that has apparently displaced the native *Lepidocephalus thermalis* reported by Raghunathan (1978) and two species of gouramies, *viz*., *Trichogaster trichopterus* and *Colisa lalia*. *Trichogaster trichopterus* is a native of Southeast Asia (Talwar & Jhingran, 1991) and was presumably introduced (and naturalized) during the past 25-30 years for the flourishing aquarium fish trade. This is a plausible argument since the local fishermen called it 'colormen' (= colored fish) and acknowledged that they are paid by commercial aquariums in Chennai to collect these from time to time.

The occurrence of *Colisa lalia* the well-known 'Dwarf Gouramy' in and around Chennai has been confirmed by several hundreds of individuals that we have collected over the years. The Dwarf Gouramy is found in almost all the wetlands in Chennai and disperses in large numbers during the rains that adults can be collected from sewage and storm water drains that get flooded (Daniels, *pers. obs.*; Daniels, 2002). In our opinion, this species, even if introduced by the aquarium industry in Chennai, is naturalized for more than 40 years. It used to be common (even

Table 1. List of fishes collected in May 2003 from Chembarampakkam Lake.

Scientific name	Remarks
Notopteridae	
Notopterus notopterus	Reported for the first time
Cyprinidae	
Puntius amphibious	Also reported by Jayasankar and Murugavel (Unpub. data)
Puntius chola	Also reported by Raghunathan (1978); Jayasankar and Murugavel (Unpub.)
Puntius conchonius	Also reported by Raghunathan (1978)
Puntius dorsalis	Also reported by Raghunathan (1978); Jayasankar and Murugavel (Unpub.)
Puntius filamentosus	Also reported by Jayasankar and Murugavel (Unpub.)
Puntius sarana	Reported for the first time
Puntius sophore	Also reported by Raghunathan (1978)
Puntius sp	To be confirmed
Puntius ticto	Also reported by Raghunathan (1978)
Puntius vittatus	Reported for the first time
Chela laubuca	Reported for the first time
Salmostoma clupeoides	Also reported by Raghunathan (1978)
Amblypharyngodon microlepis	Reported for the first time
Esomus danricus	Also reported by Raghunathan (1978); Jayasankar and Murugavel (Unpub.)
Rasbora caverii	Reported for the first time
Parluciosoma daniconius	Also reported by Raghunathan (1978)
Cobitae	
Lepidocephalus guntea	Reported for the first time
Bagridae	
Mystus cavasius	Also reported by Raj (1916); Jayasankar and Murugavel (Unpub.)
Mystus keletius	Reported for the first time
Mystus vittatus	Also reported by Raghunathan (1978) Jayasankar and Murugavel (Unpub. data)
Schilbeidae	
Pseudeutropius atherinoides	Reported for the first time
Belonidae	
Xenentodon cancila	Also reported by Jayasankar and Murugavel (Unpub.)
Adrianichthyidae	
Oryzias dancena	Also reported by Jayasankar and Murugavel (Unpub.)
Mastacembelidae	
Macrognathus pancalus	Also reported by Raghunathan (1978)
Chandidae	
Pseudambassis ranga	Also reported by Raghunathan (1978)
Cichlidae	
Etroplus maculatus	Also reported by Raghunathan (1978)
Oreochromis mossambica	Also reported by Raghunathan (1978)
Gobiidae	
Glossogobius giurus	Also reported by Raghunathan (1978)
Belontidae	
Colisa lalia	Also reported by Jayasankar and Murugavel (Unpub.)
Trichogaster trichopterus	Reported for the first time
Channidae	
Channa punctatus	Also reported by Raghunathan (1978) Jayasankar and Murugavel (Unpub.)

in the 1960s) in the moat that once surrounded the Fort in Chennai (David D.W. Daniels, *pers. comm.*). *Colisa fasciata* is a species that is much larger in size, less brightly coloured, and hence less popular in the aquarium trade. Raghunathan (1978) has reported *Colisa fasciata* from Chembarampakkam.

Lepidocephalus guntea is common and we caught many during our study. This large-sized Loach is hitherto known only from north of river Krishna (Menon, 1999). Its occurrence in Chembarampakkam may also be the result of introduction by the aquarium industry (as this species is traded in Chennai from time to time) or a more recent invasion due to the inflow of 'Krishna Water'. This could be a good candidate for future studies.

Conclusions

Wetlands in the neighborhood of Chennai offer a lot of scope for the study of fishes. Since the fisheries and the aquarium industry are both active in the city, the chances of deliberate and accidental introductions of non-native fish species are very high. The impact of introduced fish species on aquatic biodiversity has not yet been fully understood anywhere in India. More detailed study of the fish fauna of Chembarampakkam and other wetlands in and around Chennai will not only add to our knowledge of ecosystem dynamics and the fate of human-impacted biodiversity but also shed light on less understood human impacts such as 'inter-linking' of rivers.

References

Daniels, R.J.R. (2002). *Freshwater Fishes of Peninsular India*. Universities Press (India) Private Ltd, Hyderabad, 288pp.

Devi, R.K. and T.J. Indra (2003). An updated checklist of ichthyofauna of Eastern Ghats. *Zoos' Print Journal* 18(4): 1067-1070.

Menon, A.G.K. (1999). Checklist - freshwater fishes of India. *Records of the Zoological Survey of India.* Occasional Paper No.174: 366.

Raghunathan, M.B. (1978). Studies on seasonal tanks in Tamil Nadu. 1. Chambarampakkam Tank. *The Indian Journal of Zootomy* 19(2): 81-85.

Raj, S.B. (1916). Notes on the freshwater fish of Madras. *Records of the Indian Museum XII* part VI: 249-294.

Talwar, P.K. and A.G. Jhingran (1991). *Inland Fishes*. Vol. 1 & 2. New Delhi, Oxford and IBH Publishing co., Ltd, pp1158.

Venkateswarulu, T., K.V.R. Rao and T.S.N. Murthy (1975). A list of fishes, amphibians and reptiles of Madras and its vicinity. *The Indian Journal of Zootomy* 16(2): 149-169.

OCCURRENCE OF ALBINO COMMON PALM CIVET AND NORTHERN PALM SQUIRREL IN SOUTHERN RAJASTHAN

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Partial to total albinism has been reported in many mammals from India such as Nilgai (Ranjitsingh, 1982), Sloth Bear (Bharos, 1988), Rat-tailed Bat (Bhati, 1988), Tiger (Gee, 1954) and Common Mongoose (Tehsin & Chawra, 1994). Review of literature reveals that so far albinism has been not recorded in Common Palm Civet (*Paradoxurus hermaphroditus*) and Northern Palm Squirrel (*Funambulus pennanti*) in India.

On 13 April 2001, while on a night patrol in Phulwari Wildlife Sanctuary in Udaipur District, at about 2300h, I came across an albinio Common Palm Civet near Arjunpura Village. It was a full grown adult, having no trace of black colour in its fur. It crossed the road in front of my jeep and I could have a good look of the animal in the head light of the jeep. Before I could manage my camera to take a photograph, it disappeared in the thickets of *Holarrhena antidysenterica*. Next day, I confirmed my observation with the local Bhils. Many of them had seen this animal before.

Similarly, on 6 September 2001, I saw a milk white sub-adult Northern Palm Squirrel in Udaipur City which did not have dark coloured stripes on it's back. It's eyes were bright red in colour and ear pinnae of the animal were also reddish.

References

Ranjitsingh, M.K. (1987). Unusual colouration of Nilgai *Boselaphus tragocamellus*. *Journal of the Bombay Natural History Society* 84(1): 203.

Bharos, A.M.K. (1998). Albino Sloth Bear. *Journal of the Bombay Natural History Society* 85(1): 187.

Bhati, U.S. (1988). Accurrence of an albino Rat-tailed Bat *Rhinopoma microphyllum kinneari* Wroughton in the Indian Desert. *Journal of the Bombay Natural History Society* 85(3): 608.

Gee E.P. (1954). Albinism and partial albinism in Tigers. *Journal of the Bombay Natural History Society* 56(3): 581-587.

Tehsin, R. and S.S. Chawra (1994). Albino Common Mongoose (*Herpestes edwardsi* Geoffory) sighted near Udaipur. *Journal of the Bombay Natural History Society* 91(2): 304-305.

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