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RESEARCH ARTICLE

Fish Fauna of Halti Beel, Bangladesh

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ABSTRACT

This study was done for the aim of determining the fish species inhibiting in the Halti Beel, a famous wetland of northwest Bangladesh. A total of sixty-three fish species including 55 indigenous and 8 exotic species belonging to 8 orders, 20 families and 41 genera were recorded during the investigation period and listed with their nomenclature and systematic position. Cypriniformes and Cyprinidae were the dominant order and family in terms of species composition. *Puntius sophore* was the most abundant fish species accounting 8.03% of total catch. Three critically endangered, eleven endangered and eight vulnerable fish species of Bangladesh were also recorded in this water body.

INTRODUCTION

At present time, reduction in the abundance and fish species from the inland waters of Bangladesh is a burning issue in Bangladesh (Galib *et al.*, 2009). There are at least 265 freshwater fish species inhibit freshwater bodies of Bangladesh (Rahman, 2005). There are few studies related to the water body specific ichthyofauna in the country (Shahjahan *et al.*, 2001; Saha *et al.*, 2002; Ahmed *et al.*, 2004; Zafar *et al.*, 2007; Galib *et al.*, 2009; Hossain *et al.*, 2009; Mohsin *et al.*, 2009). Detailed studies on this issue is essential to assess the present status and for the sustainable management of a body of water. To the best knowledge of the authors, no research effort was carried out on fish fauna of the Halti Beel. The purpose of this paper is to make a check-list of available fish fauna of the Halti Beel, one of the most important wetland in north-west Bangladesh in terms of fish production and income generation of many fishermen, in order to understand the present status of fish diversity and their composition which would facilitate further studies on this fauna by interested researchers.

METHODOLOGY

The Halti Beel is an important wetland in north-western Bangladesh located in Natore Sadar Upazila (sub-district) of Natore district within the latitudes of 24°28.5′ to 24° 32′ North and the longitudes of 89°00′ to 89°03′ East. It is a semi-closed perennial irregular shaped water body. This wetland is famous for producing large amount of fishes throughout the year and livelihoods of hundreds of fishermen from adjacent villages rely on this body of water. The beel lies between two rivers, the Atrai and the Barnai and it receives regular flood water during monsoon period from these two rivers. The total area of the water-body is about 1012.5 ha (during monsoon) and 15.95 ha (during dry season). The water depth varies from 1.5 to 6 m depending on season. The specimens examined in present study were captured beginning from June 2009 until July 2010 from different stations which can be represented. A total of 15,365 fish specimens were collected from five sampling sites (Site I, II, III, IV and V; Fig. 1) using cast net (1 inch mesh), gill net (0.5-1.0 inch mesh), lift net (0.5-1.0 inch mesh) and fishing traps (rectangular shaped traps, locally called dohair, bitti and kholsun). Different types and mesh-nets were used to ensure maximum harvesting of various species of different sizes. In the late evening, the gill nets and fishing traps were fixed in the water body for overnight. Early morning in the next day, the nets and fishing traps were taken out of the water with the help of two hired fishermen. Cast net was also used with the help of the hired fishermen to harvest fishes from the water. The harvested fishes were counted on the spots and brought to the laboratory except those were easily identifiable and preserved in 10% formalin solution. Collected fish specimens were identified after Bhuiyan (1964), Rahman (1989 and 2005), Talwar and Jhingran (1991), Shafi and Quddus (2001) and Siddique *et al.* (2007).

RESULTS AND DISCUSSION

A total of sixty-three fish species belonging to 8 orders, 20 families and 41 genera were recorded during the investigation period. Recorded species were composed of 55 indigenous and 8 exotic species. The details are given below (classified after Nelson, 2006)-

Order: Beloniformes (Needlefishes)
Family: Belonidae (Needlefishes)
Genus: *Xenentodon*
01. *Xenentodon cancila* (Hamilton, 1822); Freshwater garfish

Order: Clupeiformes (Herrings)
Family: Clupeidae (Herrings: shads, sprats, sardines, pilchards, and menhadens)
Genus: *Gudusia*
02. *Gudusia chapra* (Hamilton, 1822); Indian river shad

Genus: *Corica*
03. *Corica soborna* Hamilton, 1822; Ganges river sprat

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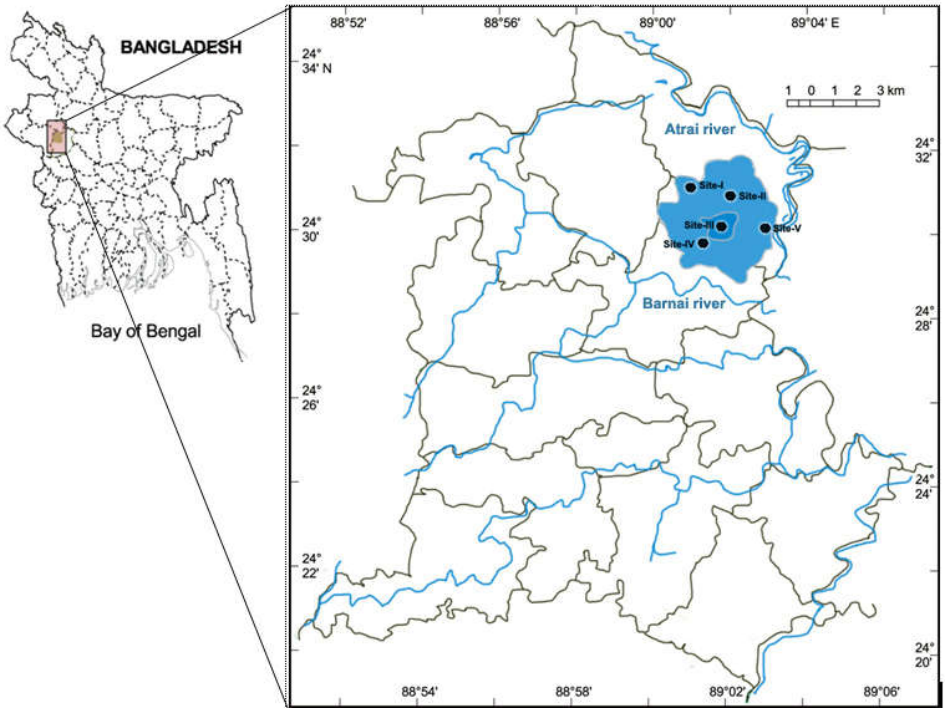

Fig. 1. Map of Natore Sadar Upazila showing the sampling stations (Site I- Site V)

Order: Cypriniformes (Carps)
Family: Cyprinidae (Minnows and carps)

Genus: *Amblypharyngodon*
04. *Amblypharyngodon mola* (Hamilton, 1822); Mola carplet

Genus: *Aristichthys*
05. *Aristichthys nobilis* (Richardson, 1845); Bighead carp

Genus: *Catla*
06. *Catla catla* (Hamilton, 1822); Catla

Genus: *Cirrhinus*
07. *Cirrhinus mrigala* (Bloch, 1795); Mrigal carp
08. *Cirrhinus reba* (Hamilton, 1822); Reba

Genus: *Ctenopharyngodon*
09. *Ctenopharyngodon idella* (Valenciennes, 1844); Grass carp

Genus: *Cyprinus*
10. *Cyprinus carpio communis*; Scale carp
11. *Cyprinus carpio specularis*; Mirror carp

Genus: *Esomus*
12. *Esomus danricus* (Hamilton, 1822); Flying barb

Genus: *Hypophthalmichthys*
13. *Hypophthalmichthys molitrix* (Valenciennes, 1844); Silver carp

Genus: *Labeo*
14. *Labeo bata* (Hamilton, 1822); Bata
15. *Labeo calbasu* (Hamilton, 1822); Orange-fin labeo
16. *Labeo rohita* (Hamilton, 1822); Roho labeo

Genus: *Barbodes*

17. *Barbodes gonionotus* (Bleeker, 1850); Java barb
Genus: *Puntius*

18. *Puntius sarana* (Hamilton, 1822); Olive barb
19. *Puntius phutunio* (Hamilton, 1822); Spottedsail barb
20. *Puntius sophore* (Hamilton, 1822); Pool barb
21. *Puntius ticto* (Hamilton, 1822); Ticto barb

Genus: *Osteobrama*
22. *Osteobrama cotio cotio* (Hamilton, 1822); Cotio

Genus: *Salmostoma*
23. *Salmostoma bacaila* (Hamilton, 1822); Large razorbelly minnow
24. *Salmostoma phulo* (Hamilton, 1822); Finescale razorbelly minnow

Family: Cobitidae
Genus: *Acanthocobatis*
25. *Acanthocobatis botia* (Hamilton, 1822); Mottled loach

Genus: *Botia*
26. *Botia dario* (Hamilton, 1822); Bengal loach
27. *Botia lohachata* Chaudhuri, 1912; Reticulate loach or Y-loach

Genus: *Lepidocephalus*
28. *Lepidocephalus guntea* (Hamilton, 1822); Guntea loach

Genus: *Somileptus*
29. *Somileptus gongota* (Hamilton, 1822); Gongota loach

Order: Perciformes (Perches)
Family: Ambassidae/Chandidae (Asiatic glassfishes)
Genus: *Chanda*
30. *Chanda nama* Hamilton, 1822; Elongate glass-perchlet
31. *Chanda ranga* Hamilton, 1822; Indian glass-perchlet
32. *Chanda lala* Hamilton, 1822; Highfin glassy perchlet

Family: Anabantidae (Climbing goumaries)
Genus: *Anabas*
33. *Anabas testudineus* (Bloch, 1792); Climbing perch

Family: Channidae (Snakeheads)
Genus: *Channa*
34. *Channa punctata* (Bloch, 1793); Spotted snakehead

35. *Channa orientalies* Bloch & Schneider, 1801; Walking snakehead
36. *Channa striata* (Bloch, 1793); Snakehead murrel
37. *Channa marulius* (Hamilton, 1822); Great snakehead

Family: Cichlidae (Cichlids)
Genus: *Oreochromis*
38. *Oreochromis mossambicus* (Peters, 1852); Java tilapia
39. *Oreochromis niloticus* (Linnaeus, 1758); Nile tilapia

Family: Gobiidae (Gobies)
Genus: *Glossogobius*
40. *Glossogobius giuris* (Hamilton, 1822); Tank goby

Family: Osphronemidae (Gouramies)
Genus: *Colisa*
41. *Colisa fasciata* (Bloch & Schneider, 1801); Banded gourami
42. *Colisa lalia* (Hamilton, 1822); Dwarf gourami

Order: Siluriformes (Catfishes)
Family: Bagridae (Bagrid catfishes)
Genus: *Mystus*
43. *Mystus cavasius* (Hamilton, 1822); Gangetic mystus
44. *Mystus seenghala* (Sykes, 1839); Giant river catfish
45. *Mystus tengara* (Hamilton, 1822); Tengara catfish
46. *Mystus vittatus* (Bloch, 1794); Stripped dwarf catfish

Genus: *Rita*
47. *Rita rita* (Hamilton, 1822); Rita

Family: Clariidae (Airbreathing catfishes)
Genus: *Clarias*
48. *Clarias batrachus* (Linneaeus, 1758); Walking catfish

Family: Heteropneustidae/Saccobranchidae (Airsac catfishes)
Genus: *Heteropneustes*
49. *Heteropneustes fossilis* (Bloch, 1794); Stinging catfish

Family: Schilbeidae/Schilbidae (Schilbeid catfishes)
Genus: *Ailia*
50. *Ailia coila* (Hamilton, 1822); Gangetic ailia

Genus: *Eutropiichthys*
51. *Eutropiichthys vacha* (Hamilton, 1822); Batchwa vacha

Genus: *Pseudeutropius*
52. *Pseudeutropius atherinoides* (Bloch, 1794); Potasi

Family: Siluridae (Sheatfishes)
Genus: *Ompok*
53. *Ompok pabda* (Hamilton, 1822); Pabdah catfish
54. *Ompok bimaculatus* (Bloch, 1794); Butter catfish

Genus: *Wallago*
55. *Wallago attu* (Bloch & Schneider, 1801); Freshwater shark

Family: Sisoridae (Sisorid catfishes)
Genus: *Hara*
56. *Hara hara* (Hamilton, 1822); Kosi hara

Order: Synbranchiformes (swamp eels)
Family: Mastacembelidae (Spiny eels)
Genus: *Mastacembelus*
57. *Mastacembelus pancalus* (Hamilton, 1822); Barred spiny eel
58. *Mastacembelus armatus* (Lacepède, 1800); Zig-zag eel

Genus: *Macrognathus*
59. *Macrognathus aculeatus* (Bloch, 1786); Lesser spiny eel

Family: Synbranchidae (Swamp eels)
Genus: *Monopterus*
60. *Monopterus cuchia* (Hamilton, 1822); Mud eel

Order: Osteoglossiformes (Bonytongues)
Family: Notopteridae (Featherfin knifefishes or Old World knifefishes)
Genus: *Notopterus*
61. *Notopterus chitala* (Hamilton, 1822); Clown knifefish
62. *Notopterus notopterus* (Pallas, 1769); Bronze featherback

Order: Tetraodontiformes (Plectognaths)
Family: Tetraodontidae (Puffers)
Genus: *Tetraodon*
63. *Tetraodon cutcutia* Hamilton, 1822; Ocellated pufferfish

Among the recorded fishes, order Cypriniformes represented the highest species composition (41.27%) followed by Siluriformes (22.22%), Perciformes (20.63%). Similarly family Cyprinidae represented the highest species composition (33.33%) followed by Bagridae and Cobitidae (7.94% each) and Channidae (6.35%). Analyzing the catch composition of individual fish species it was revealed that *Puntius sophore*, *Chanda nama*, *C. ranga*, *Mystus tengara*, *M. cavasius*, *Channa punctata*, *Macrognathus aculeatus*, *Amblypharyngodon mola*, *Mastacembelus armatus* and *Colisa fasciata* were the most abundant species in the beel (Table 1). Eight exotic fish species *viz. Aristichthys nobilis* (Bighead carp), *Ctenopharyngodon idella* (Grass carp), *Cyprinus carpio communis* (Scale carp), *C. carpio specularis* (Mirror carp), *Hypophthalmichthys molitrix* (Silver carp), *Barbodes gonionotus* (Java barb), *Oreochromis mossambicus* (Java tilapia) and *Oreochromis niloticus* (Nile tilapia) were recorded. Among these 8 exotic species, *O. mossambicus and O. niloticus* were found almost throughout the year and remaining species were recorded only during the monsoon season. So, tilapia population seemed to be established themselves in the studied water body. But presence of other exotic fishes may be due to carriage from the culture ponds nearby the beel by flood water. However presence of exotic fish species especially prolific breeders like tilapias is a potential threat to indigenous fishes and may lead to the loss of indigenous species. Similar findings were also recorded in Jagadispur Reservoir of Nepal by Gautam *et al.* (2010).

Presence of nine non-native fish species was recorded in the Chalan Beel (Galib *et al.* 2009) and five species in the Bookbhara oxbow lake (Mohsin *et al.*, 2009) of Bangladesh. Nile tilapia population has already been established in the Kaptai Lake, the largest impoundment in Bangladesh, and a considerable amount of harvest of this species is made every year undermining the production of other residential fish fauna of the lake (FRSS, 2010; Ahmed and Hambrey, 2005). It was a matter of hope that the tilapia population structure was not large in studied water body during the investigation period and could be controlled or eradicated with effective measures. Otherwise their populations can multiply at the expanse of indigenous species. Impacts of non-native fishes to the native fauna should be continuously monitored on regular basis any water body as this is crucial to take necessary measures against unwanted non-native fish introductions (Önsoy *et al.*, 2011) and it is most desirable to prevent the introduction of non-native species. Similar comments were also made by Önsoy *et al.* (2011). A number of fish species declared threatened to extinct fishes by IUCN Bangladesh (2000) were recorded from the Halti Beel. Of these, three species *Puntius sarana* (Olive barb), *Rita rita* (Rita) and *Eutropiichthys vacha* (Batchwa vacha) are critically endangered; eleven species *Notopterus chitala*, *Labeo bata*, *L. calbasu*, *Osteobrama cotio*, *Botia dario, B. lohachata, Mystus seenghala, Ompok pabda*, *O. bimaculatus, Channa marulius* and *Maxtacembelus armatus* are endangered; eight species *N. notopterus*, *Cirrhina reba*, *P. ticto*, *M. cavasius*, *Monopterus cuchia, Chanda nama*, *C. ranga* and *C. orientalis* are vulnerable (IUCN Bangladesh, 2000). Many of these species were commonly found in the Halti Beel but may be at stake if proper management are not employed. This body of water could be an excellent place for natural conservation of threatened fish species of the country.

Table 1. Catch composition of fish species

Name of species	Common name	Total catch (No.)	Catch composition (%)
Puntius sophore	Pool barb	1234	08.03
Chanda nama	Elongate glass-perchlet	1209	07.87
Chanda ranga	Indian glass-perchlet	1103	07.18
Mystus tengara	Tengra mystus	1002	06.52
Mystus cavasius	Gangetic mystus	0934	06.08
Channa punctata	Spotted snakehead	0926	06.03
Macrognathus aculeatus	Lesser spiny eel	0826	05.38
Amblypharyngodon mola	Mola carplet	0817	05.32
Mastacembelus armatus	Zig-zag eel	0724	04.71
Colisa fasciata	Giant gourami	0511	03.33
Glossogobius giuris	Tank goby	0489	03.18
Pseudeutropius atherionoides	Potasi	0559	02.99
Salmostoma bacaila	Large razorbelly minnow	0558	02.98
Lepidocephalus guntea	Guntea loach	0434	02.82
Puntius sarana	Olive barb	0432	02.81
Wallago attu	Freshwater shark	0358	02.33
Cirrhina reba	Reba	0357	02.32
Channa striata	Snakehead murrel	0341	02.22
Esomus danricus	Flying barb	0318	02.07
Oreochromis niloticus	Nile tilapia	0219	01.43
Others		2214	14.41

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