J. Asiat. Soc. Bangladesh, Sci. 40(2): 309-317, December 2014

THE SMALL INDIGENOUS SPECIES (SIS) OF FISH OF NETRAKONA DISTRICT

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Abstract

The investigation on small indigenous species of fish (SIS) of Netrakona district was conducted from July 2003 to June 2004. A total number of 78 SIS belonging to 54 genera, 4 sub-families, 25 families and 10 orders was identified from the district. The most dominant family was Cyprinidae having 26 species under the order Cypriniformes. *Puntius* was the largest genus containing 7 species.The most abundant SIS was Mola (*Amblypharyngodon mola*) during the investigation period, whereas the least abundant SIS was Bacha (*Eutropiichthys vacha*). Seasonal variations were observed in the abundance of different SIS.

Key words: SIS, *Puntius*, Cyprinidae, Seasonal abundance, Netrakona district

Introduction

The small indigenous fish species (SIS) of Bangladesh are generally considered to be those fishes which grow to a length of less than 25 cm or 9 inches (Felts *et al.* 1996). Among the fishery commodities, the small fishes occupy an important position in the popular human food items. The SIS fishes are available in smaller water bodies like drains, ditches, ponds, lakes, beels.

Although the freshwaters of Bangladesh abound with a large variety of SIS fishes, systematic position of these fishes has not been adequately studied in the past, especially from the point of view of modern systematics. It is an accepted fact that before any management and development program relating to fish and fisheries undertaken, it is essential to determine the taxonomic status of the fish concerned. The need for the production of a comprehensive guide for identification of SIS fish fauna of the country was, therefore, greatly felt.

Although many scientists (Ahmad 1953, Bhuiyan 1964, Doha 1973, Huda *et al.* 2009, Islam and Ahmed 2010) reported freshwater bony fishes of different waterbodies of the country, no published report or survey regarding SIS fishes of Netrakona district is uptil now available. The water of Netrakona district is rich with a variety of fishes of commercial importance and taxonomic interest. Thus the present investigation was conducted to explore richness and diversity of SIS from different waterbodies of Netrakona district.

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Material and Methods

Samples of fish specimen were collected from different waterbodies such as ponds, ditches, canals, beels, rivers of Netrakona district extending over a period of one year from July 2003 to June 2004 from commercial fishermen and from fish markets. The main rivers are the Kangsa, Someswari, Dhanu and Mogra. The beels are Bhawal, Rajdhala Manza, Garadhar, Baila etc. The haors are Dingaputa, Ganesher. Three fish landing centres (Jaria ghat of Purbodhala, Mohanganj ghat of Mohonganj and Khaliajuri ghat of Khaliajuri), two fish markets (Machh bazar and Rail Crossing bazar of Netrakona sadar) and some catch points at Barhatta, Durgapur, Kalmakanda and Madan were selected to collect fish samples and data.

Sampling was made following Backiel and Welcomme (1980). Detailed sampling information is described in Table 1. Description of the fishes was based on both direct observations on the fishes of different waterbodies and interview with the local fishermen. The specimens were primarily classified on the spot and which were difficult to identify on the spot, were preserved in 5-10 per cent formalin in plastic jars. The preserved specimens were labelled with date of collection, number and locality and brought to the department of Zoology, Netrokona Govt. College, Netrokona, Bangladesh. Identification of fishes were done following Day (1878), Munro (1955), Srivastava (1968), Jayaram (1981), Shafi and Quddus (1982), Rahman (1989).

Table 1. Description of the sampling stations used in the SIS study of Netrakona district.

Sampling station	Sampling period	Description	Sampling frequency
St-1: Durgapur, Kalmakanda	Sum (Feb-Apr)	Hot weather, minimum water volume, fishes become vulnerable to fishing effort	St-1=1 St-2=2 St-3=1 St-4=1
St-2: Purbadhala, Netrakona	Rai (May-Jul)	Water volume increases, torrential flow, difficult to catch fishes	St-1=1 St-2=2 St-3=1 St-4=0
St-3: Barhatta, Mohanganj	Aut (Aug-Oct)	Water volume and current moderate, fishes become vulnerable to fishing gear in the second half of the period	St-1=1 St-2=2 St-3=2 St_4=2
St-4: Madan, Khaliajuri	Win (Nov-Jan)	Cold weather, diminishing water volume, fishes become susceptible to fishing gear	St-1=2 St-2=3 St-3=2 St-4=1

Sum: Summer, Rai: Rainy season, Aut: Autumn, Win: Winter; Feb-February, Aug-August, Oct-October, Nov-November, Jan-January; St-Station.

Results and Discussion

The taxonomic features of the SIS fishes identified during the course of the study are presented with their occurrence and seasonal abundance in Table 2. A total number of 78 small indigenous species (SIS) of fish was identified belonging to 10 orders, 25 families, 04 sub-families and 55 genera. Among the SIS fishes obtained, the family Cyprinidae was the dominant group in regard to genera, species and specimens. The abundance of the species was found to be vary with seasons and locations. Variety of minnows (Darkina, Chela, Mola etc) and barbs was found to be abundant.

Punti (*Puntius* spp.), Tengra (*Mystus* spp.), Mola (*Amblypharyngodon mola*) and Guchi baim (*Mastacembalus pancalus*) were maximum in number in terms of their quantity and seasonal abundance. Bacha (*Eutropiichthys vacha*), Elang (*Rasbora elanga*), Shilong (*Silonia silondia*) and Joya (*Aspidoparia morar*) were minimum in number. According to IUCN-Redbook (2000), Sar punti (*Puntius sarana*) was a critically endangered species in perspective of the whole country. But in the present study good quantity of Sar punti was found. Islam and Ahmed (2010) also reported *Puntius sarana* from Trishal, Mymenshingh.

The catch of SIS observed was the highest in August- September and was the lowest in March showing a seasonal variation. The abundance of SIS increased with rainy season when rivers, floodplain areas, beels, ponds, ditches are fulfiled with water. Availability of SIS started to decrease after post monsoon. In that period, SIS is easy to harvest. Thus, it was observed that, the catch of SIS increases in December. Karim (2003) observed that the abundance of fishes started to increase with rainy season and the pick harvesting season was in the late monsoon which also coincides with the present report.

It was observed that the abundance of SIS was found to be varied in number, size and type at different investigation sites. Some were plenty in one site, whereas some were rare or absent. The reason behind these variations depends on the basin topography, food availability and fishing intensity (Huda *et al.* 2009).In Mohanganj, the highest (62) species of SIS were found. A big haor (Dingaputa) is in confluent with the waterbodies of Mohanganj upazilla which is responsible for richness and diversity of SIS in this upazilla. Other upazillas viz. Khaliajuri, Purbodhola, Madan, Netrakona Sadar, Barhatta, Kalmakanda and Durgapur contained 61, 61, 55, 55, 54, 51 and 17 species as SIS respectively.

In this investigation, 78 SIS were found. Ali (1997) recorded 143 species of SIS from the waters of Bangladesh.The waterbody of Netrakona is little in comparison to the total aquatic area of Bangladesh. But, it can be said that the abundance of SIS would not be little in comparison to that of the whole country.

Table 2. Taxonomy of SIS with their local names, occurrence in investigation sites and seasonal abundance of Netrakona district.

Taxonomic position of SIS	Local name	Occurrence in investigation sites	Seasonal abundance
O. Beloniformes			
F. Belonidae			
G. *Xenentodon* (Regan, 1811)	Kaika/ Kakila	B,M,K,N,Kh,Mo,P	M
1. *X. cancila* (Hamilton, 1822)			
F. Hemirhamphidae			
G. *Hyporhamphus* (Cuvier, 1817)			
2. *H. gaimardi* (Valenciennes, 1847)	Ek-thuita	P	M
O. Channifomes			
F. Channidae			
G. *Channa* (Scopoli, 1977)			
3. *C. punctatus* (Bloch, 1793)	Taki	B,N,Mo,M,K, Kh,P	W W
4. *C. orientalis* (Bloch and Schneider, 1801)	Cheng	*B*,N,K,M,Mo,Kh,	
O. Clupeiformes			
F. Clupeidae	Kachki	B,N,P,M,Kh,K,Mo	PM
G. *Corica* (Hamilton, 1822)			
5. C. *soborna* (Hamilton, 1822)	Chapila	B,P,N,Kh,M,Mo,K	W
G. *Gudusia* (Fowler, 1911)			
6. G.chapra (Hamilton,1822)			
F. Engraulidae			
G. *Setipinna* (Swainson, 1839)	Phasa	N,P,Kh,Mo	M
7. *S. phasa* (Hamilton, 1822)			
O. Cypriniformes			
F. Cobitidae			
G. *Botia* (Gray, 1831)			
8. *B. dario* (Hamilton, 1822)	Rani/ Beti	B,N,P,Kh,M,K,Mo	PM
G. *Lepidocephalus* (Bleeker, 1863)			
9. *L. guntea* (Hamilton, 1822)	Gutum/ Puiya	B,N,P,Mo,K,Kh,M	A
G. *Nemachilus* (Van Hasselt, 1823)			
10. *N. botia* (Hamilton, 1822)	Bilturi/Balichata	D,P	W
11. *A. pangia* (Hamilton, 1822)	-	D,P	PM
G. *Somileptes* (Bleeker, 1863)			
12. *S. gongota* (Hamilton, 1822)	Pahari gutum	D,N,P	PM
F. Cyprinidae			
S.F. Cyprininae			
G. *Amblypharyngodon* (Bleeker, 1860)			
13. *A. mola* (Hamilton, 1822)	Mola/ Moya	B,N,K,M,Mo,Kh,P	A
G. *Aspidoparia* (Heckel, 1847)			
14. *A. morar* (Hamilton, 1822)	Morari/ Morar	B,D,Mo,P	M
G.*Barilius* (Hamilton, 1822)			
15.*B. bendelis* (Hamilton, 1822)	Joia/Hiralu/Koksa	B,D,Mo,Kh,M,P	M
16.*B. tileo* (Hamilton,1822)	Tila/ Patharchata	B,D,Mo,Kh,M,P	M

Contd.

Taxonomic position of SIS	Local name	Occurrence in investigation sites	Seasonal abundance
G. *Danio* (Hamilton,1822)	Debari		M
17. *D. devario* (Hamilton, 1822)	Anju	B,N, K	M
18. *D. rerio* (Hamilton, 1822)	Chebli	D,K,N,Mo,Kh	M
19. *D.* aequipinnatus (McClelland, 1839)		D	
G. *Cirrhinus* (Oken 1817)	Raik/Tatkini/Lacho		PM
20.. *C. reba* (Hamilton,1822)		Mo,Kh,M,D,N,K,P	
G. *Labeo* (Cuvier, 1816)	Bata		M
21. *L. bata* (Hamilton, 1822)	Gonia	B,N,K,Mo,P	M
22. *L. gonius* (Hamilton, 1822)	Khursa	B,N,Kh,Mo,K,M	M
23. *L. dero*		D,P	
G. *Osteobrama* (Heckel, 1843)	Moa/ Dhela		PM
24. *O. cotio* (Heckel, 1843)	Chola punti	B,Kh,Mo,K,P,M,N	
G. *Puntius* (Hamilton, 1822)	Kanchan Punti		A
25. *P. chola* (Hamilton, 1822)	Phutuni Punti	B,N,Mo,K,M,Kh,P	W
26. *P. conchonius* (Hamilton, 1822)	Jat punti	B,K,M,Kh,Mo,N,P	PM
27. *P. phutunio* (Hamilton, 1822)	Tit punti	B,K,M,D,Mo,Kh	A
28. *P. sophore* (Hamilton,1822)	Gilipunti	B,N,Mo,Kh,D,P,M	A
29. *P. ticto* (Hamilton,1822)	Sar punti	B,N,Mo,D,P,M,Kh	PM
30. *P. gelius* (Hamilton,1822)		B,N,Mo,K,M	W
31. *P. sarana* (Hamilton,1822)		Mo,Kh,M,	
S.F. Leuciscinae	Chhep chela		
G. *Chela* (Hamilton, 1822)		B,N,Mo,P,M,Kh	PM
32. *C. cachius* (Hamilton,1822)	Narkeli chela		
G. *Salmostoma* (Swainson, 1839)	Phul chela	B,Mo,N,K,M,P,Kh	PM
33. *S. bacaila* (Hamilton,1822)		B,Mo,K,M,N,P	PM
34. *S. phulo* (Hamilton,1822)			
S.F. Rasborinae	Darkina/ Darika		
G. *Esomus* (Swainson, 1839)		B,N,D,K,Mo,Kh,	M
35. *E. danricus* (Hamilton,1822)	Along	M,P	
G. *Rasbora* (Bleeker, 1860)	Luzza darkina	B,N, M,Kh,P,K	M
36. *R. elanga* (Hamilton, 1822)	Darkina	B,K,M,Kh,Mo,N	M
37. *R. rasbora* (Hamilton,1822)		B,N,D,M,K,Kh,Mo	M
38. *R. daniconius* (Hamilton,1822)			
O. Cyprinodontiformes			
F. Cyprinodontidae	Techouka/		
G. *Aplocheilus* (McClelland, 1839)	Kanpona	B,N,Mo,K,Kh,M	M
39. *A. panchax* (Hamilton,1822)			
O. Mastacembeliformes			
F. Mastacembelidae	Guchi baim/		
G. *Mastacembelus* (Scopoli, 1777)	Pakal	B,N,Mo,K,Kh,M,P	M
40. *M. pancalus* (Hamilton,1822)	Tara baim		
G. *Macrognathus* (Lacepede,1800)		B,N,K,Mo,M,Kh	PM
41. *M. aculeatus* (Bloch,1786)			
O. Perciformes			
F. Anabantidae			
G. *Anabas* (Clooquet, 1816)			

Contd.

Taxonomic position of SIS	Local name	Occurrence in investigation sites	Seasonal abundance
42. A.testudineus (Bloch,1792)	Koi	B,N,Kh,Mo,M,K, P	W
F. Osphronemidae			
G. *Colisa* (Cuvier and Valenciennes 1831)			
43. *C. fasciata* (Bloch and Schneider,1801)	Khalisha	B,Mo,K,M,N,P,Kh	W
44. *C lalius* (Hamilton,1822)			
45. *C. sota* (Hamilton,1822)	Boicha/ Lal khalisa	Mo,Kh,M,P	W
G. *Ctenops* (McClelland, 1844)	Chuna	B,N,K,M,P	W
46. *C. nobilis* (McClelland,1844)	khalisa		
F. Pristolepidae	Neftani	Kh,M,Mo,K	PM
G. *Badis* (Bleeker, 1863)			
47. *B.badis* (Hamilton,1822)			
S.F. Gobiinae			
G. *Glossogobius* (Gill, 1856)	Koi bandi/ Napit	K,Mo,M,Kh	PM
48. *G.giuris* (Hamilton,1822)			
F. Ambassidae			
G. *Chanda* (Hamilton, 1822	Bele/ Baila	B,N,Mo,Kh,M,K,P	PM
49. *C. nama* (Hamilton,1822)			
G. *Parambassis* (Bleeker, 1874)	Nama chanda	B,N,Kh,M,K,Mo,P	M
50. *P.ranga* (Hamilton,1822)			
G. *Brachygobius* (Bleeker, 1874)			
51. *B. nunus* (Hamilton,1822)	Lal chanda	B,Kh,Mo,N,K,M,P	M
F. Nandidae			
G. *Nandus* (Cuvier and Valenciennes, 1831)	Nuna baila	B,N,Kh,M,Mo,P,K	PM
52. *N. nandus* (Hamilton,1822)	Meni/ Bheda	B,N,Mo,Kh,M,K,P	W
O. Siluriformes			
F. Bagridae			
G. *Mystus* (Scopoli, 1777)			
53. *M. bleekeri* (Day,1877)	Guja tengra	N,Mo,Kh,M,P	A
54. *M. cavasius* (Hamilton,1822)	Kabashi tengra Kalo	Mo,Kh,N,K,P	A
55. *M. tengara* (Hamilton, 1922)	bujuri /Tengra	B,Kh,N,K,M	A
56. *M. vittatus* (Bloch, 1794)	Gulsha tengra	B,Kh,M,K,P,Mo	W
G. *Chandramara* (Jayaram, 1972)			
57. *C. chandramara* (Hamiton,1822)	-	M,Kh,N,K,Mo	M
G. *Batasio* (Blyth,1860)			
58. *B. tengana* (Hamilton 1822)	Tengra	B,M,Kh,Mo,N,P	W
F. Chacidae			
G. *Chaca* (Gray, 1831)			
59. *C.chaca* (Hamilton,1822)	Chekmaka/ Chega	B,Kh,Mo,M,N,K,P	W

Contd.

Taxonomic position of SIS	Local name	Occurrence in investigation sites	Seasonal abundance
F. Clariidae			
G. *Clarias* (Scopoli, 1777)			
60. *C. batrachus* (Linnaeus,1758)	Magur	B,Mo,N,K,M,Kh,P	W
F. Heteropneustidae			
G. *Heteropneustes* (Muller, 1840)			
61. *H. fossilis* (Bloch,1792)	Shing	B,N,Mo,K,Kh,M,P	W
F. Schilbeidae			
G. *Ailia* (Gray, 1831			
62. *A. coila* (Hamilton,1822)	Kajoli	B,Kh,N,P,M,Mo	W
G. *Clupisoma* (Swainson, 1838)			
63. *C. garua* (Hamilton,1822)	Gharua	B,Kh,M,P	PM
G. *Eutropiichthys* (Bleeker, 1862)			
64. *E. vacha* (Hamilton 1822)	Bacha	Kh,M,P,Mo	M
G. *Pseudeutropius* (Bleekeri, 1863)			
65. *P. atherinoides*, (Bloch,1794)	Batasi	B,Kh, N, P	M
G. *Silonia* (Swainson, 1839)			
66. *S. silondia* (Hamilton,1822)	Shilong	B,Kh,M,Mo,P,K	M
F. Siluridae			
G. *Ompok* (Lacepede, 1803)			
67. *O. pabda* (Hamilton,1822)	Pabda	Kh,M,Mo,P,K	W
68. *O. bimaculatus* (Bloch,1794)	Kani pabda	B,Kh,M,K,N,P,Mo	W
F. Sisoridae			
G. *Gagata* (Bleeker, 1858)			
69. *G. viridescens* (Hamilton, 1822)	Gang tengra	Mo,P	M
70. *G. youssoufi* (Rahman, 1976)	Gang tengra	P	M
G. *Hara* (Blyth, 1860)			
71. *H. hara* (Hamilton,1822)	Kutakanti	Kh,Mo,N	M
72. *H. jerdoni* (Day,1878)	Kutakanti	Kh,Mo,N	M
G.*Erethistes* (Muller and Troschel, 1845)			
73. *E. pussilus* (Muller and Troschel, 1845)	Kutakanti	D,P	M
G. *Glyptothorax* (Blyth, 1860)			
74. *T. telchitta* (Hamilton,1822)	Teli/Telchitta	B,N,Kh,Mo,P	M
F. Amblycepitidae			
G. *Amblyceps* (Blyth, 1858)			
75. *A. mangois* (Hamilton, 1822)	-	B,D,P	M
O. Osteoglossiformes			
F. Notopteridae			
G. *Notopterus* (Lacepede, 1800)			
76. *N. notopterus* (Pallas, 1769)	Pholi	B,N,Mo,M,Kh,K,P	W
O. Tetraodontiformes			
F. Tetraodontidae			
G.*Tetraodon* (Linnaeus, 1758)			

Contd.

Taxonomic position of SIS	Local name	Occurrence in investigation sites	Seasonal abundance
77. *T. cutcutia* (Hamilton, 1822)	Potka / Tepa	B,Mo,M,N,K,Kh,P	M
F. Mugilidae			
G. *Mugil* (Linnaeus, 1758)			
78. *M. cascasia* (Hamilton, 1822)	Kachki/ Bata	B,P,Mo,Kh,K	M

Investigation site: Barhatta (B), Durgapur (D), Kalmakanda (K), Khaliajuri (Kh), Madan (M), Mohonganj (Mo), Netrakona sadar (N), Purbodhala (P) Seasonal abundance: A: All seasons, M: Monsoon, PM: Post monsoon, W: Winter

Number of SIS was found to vary in different orders throughout the study period. Order Cypriniformes occupied the highest position while two orders such as Cyprinodontiformes and Osteoglossiformes ranked the lowest position.

Acknowledgement

The authors wish to express their deep sense of gratitude to Prof. Md. Ruhul Amin, Principal, Netrakona Govt. College, Netrakona for providing necessary laboratory facilities during the course of the research work.

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(Received revised manuscript on 6 June 2014)