

NOTES ON THE FISH RESOURCES OF THE BAHUDA ESTUARY, ORISSA, INDIA

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ABSTRACT

Estuaries form an important site for the zoologist as these are the places known to be very rich in food and nutrients and so, become nesting-cum-breeding grounds for many species and also, own good species diversity. Bahuda estuary of Orissa is located at the inter-state border of Orissa and Andhra Pradesh. Explored for many invertebrates, this estuary was not properly investigated for its rich fish fauna. Various surveys at Bahuda estuary revealed that it is an important site of study for the faunal diversity of fishes in the east coast. Forty-eight species belonging to 33 genera under eight orders and 22 families were examined referring standard literature and methods. Most of the groups of fishes encountered are of commercial importance.

Keywords: Fish resources, Bahuda estuary

INTRODUCTION

River Bahuda is a small river, only 73 km long. It originates in the hills of the Eastern Ghats near Ramgiri village in the Gajapati district of Orissa at an elevation of 600 m (15° 03' N and 84° 20' E) and runs south-eastward to enter the Srikakulam district of Andhra Pradesh. Later, it makes a north-east turn and after Ichhapuram, again enters Orissa to form the estuary near Sunapur (Ganjam district) before draining into the Bay of Bengal at 18° 4' N latitude and 84° 24' E longitude. The physicochemical parameters of Bahuda estuary show well marked seasonal as well as spatial variations being influenced by monsoon cycle and tidal rhythm (Mishra *et al.*, 1993). Although many groups of invertebrates were studied at this estuary, no studies have been made on

the fish fauna till recent time. This estuary shows higher species diversity during the pre-monsoon season when the estuary is under marine influence, while an opposite trend is observed during the monsoon season (Mishra and Panigrahy, 1996). The pH and salinity increase during high tides, concentrations of dissolved oxygen and inorganic phosphate increase during ebb regime, and a trend is observed starting from monsoon to pre-monsoon indicating high productivity towards the confluence with bay (Rajendran *et al.*, 2004).

MATERIAL AND METHODS

In order to study the fish resources of this small estuary, seasonal surveys were undertaken during 2005-06. All the fish samples so far obtained from this estuary have been studied, preserved and

deposited with the Estuarine Biological Station (Zoological Survey of India), Gopalpur-on-Sea. Each specimen was examined thoroughly and identified following standard literature (Day, 1875, 1876, 1877, 1878, 1888; Weber and Beaufort, 1953; Munro, 1955; Misra, 1962; Fischer and Whitehead, 1974). The systematic arrangement was made as per the classification given by Nelson (1994). In all, 48 species belonging to 33 genera under 22 families and eight orders have been encountered with.

Check-list of the Fishes from Bahuda Estuary

Class: OSTEICHTHYES

Order: Anguilliformes

Family: Ophichthidae

1. *Muraenesox bagio* (Hamilton)

Order: Clupeiformes

Family: Clupeidae

2. *Escualosa thoracata* (Valenciennes)
3. *Hilsa kelee* (Cuvier)
4. *Nematalosanaus* (Bloch)
5. *Sardinella fimbriata* (Valenciennes)
6. *S. longiceps* Valenciennes

Family: Engraulididae

7. *Stolephorus andhraensis* Babu Rao
8. *S. indicus* (van Hasselt)
9. *Thryssa mystax* (Bloch & Schneider)

Order: Siluriformes

Family: Bagridae

10. *Mystus gulio* (Hamilton)
11. *M. vittatus* (Hamilton)

Family: Ariidae

12. *Arius gagara* (Hamilton)

13. *A. jella* Day

Family: Plotosidae.

14. *Plotosus lineatus* (Thunberg)

Order: Mugiliformes

Family: Mugilidae

15. *Liza melinoptera* (Valenciennes)
16. *L. parsia* (Hamilton)
17. *Mugil cephalus* Linnaeus
18. *Valamugil cunnesius* (Valenciennes)
19. *V. speigleri* (Bleeker)

Order: Scorpaeniformes

Family: Platycephalidae

20. *Grammoplites scaber* (Linnaeus)
21. *Platycephalus indicus* (Linnaeus)

Order: Perciformes

Family: Ambassidae

22. *Ambassis gymnocephalus* (Lacepede)

Family: Sillaginidae

23. *Sillago intermedium* Wongratana
24. *S. vincenti* McKay

Family: Teraponidae

25. *Terapon jarbua* (Forsskal)
26. *T. puta* Cuvier

Family: Carangidae

27. *Caranx carangus* (Bloch)
28. *C. ignobilis* (Forsskal)
29. *C. sexfasciatus* Quoy & Gaimard

Family: Leiognathidae

30. *Gazza minuta* (Bloch)
31. *Leiognathus brevirostris* (Valenciennes)
32. *L. equulus* (Forsskal)
33. *L. splendens* (Cuvier)
34. *Secutor insidiator* (Bloch)
35. *S. ruconius* (Hamilton)

Family: Lutjanidae

36. *Lutjanus johnii* (Bloch)

Family: Gerreidae

37. *Gerres filamentosus* Cuvier
 38. *G. longirostris* (Lacepede)
 39. *G. phayia* Iwatsuki & Heemstra

Family: Monodactylidae

40. *Monodactylus argenteus*
 (Linnaeus)

Family: Sphyraenidae

41. *Sphyraenajello* Cuvier

Family: Gobiidae

42. *Oxyurichthys microlepis*
 (Bleeker)
 43. *Psammogobius biocellatus*
 (Valenciennes)

Family: Siganidae

44. *Siganus canaliculatus* (Park)

Family: Scombridae

45. *Scomberomorus commerson*
 (Lacepede)

Order: Pleuronectiformes

Family: Cynoglossidae

46. *Cynoglossus punticeps*
 (Richardson)
 47. *Paraplagusia bilineata* (Bloch)

Order: Tetraodontiformes

Family: Tetraodontidae

48. *Lagocephalus spadiceus*
 (Richardson)

DISCUSSION

This presentation is based on a preliminary study on the fish resources of east coast of India, since no account on the fishes of the Bahuda estuary is available till date. Mishra *et al.* (1999) have provided a list of the fishes of Ganjam coast, but the fishes of Bahuda estuary were not specified in that. All the fish species encountered in this small estuary have commercial value except for *L.*

spadiceus, which is considered as a poisonous fish. Moreover, the presence of five species of mullets (*L. melinoptera*, *L. parsia*, *M. cephalus*, *V. cunnesius* and *V. speigleri*) in this estuary makes it a good site for the collection of mullet seed for stocking brackishwater ponds. The estuary has a large mudflat near it which can well be utilized for brackishwater culture of these prized species. In the estuaries of the rivers originating from the Eastern Ghats, mullets seem to be the most dominant group of fishes (Kathiresan and Rajendran, 2002), which is also observed in this small estuary.

Most of the species reported here are known to be of estuarine or brackishwater habitat. Only the juveniles of the scombrid *S. commerson* enter the estuary. The clupeids such as *S. fimbriata*, *S. longiceps* and *T. mystax* are coastal marine fishes, but enter the estuary under tidal influence when the salinity remains high.

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