

A PRELIMINARY ACCOUNT ON THE FISH FAUNA OF THE
ESTUARIES OF GANJAM DISTRICT, ORISSA

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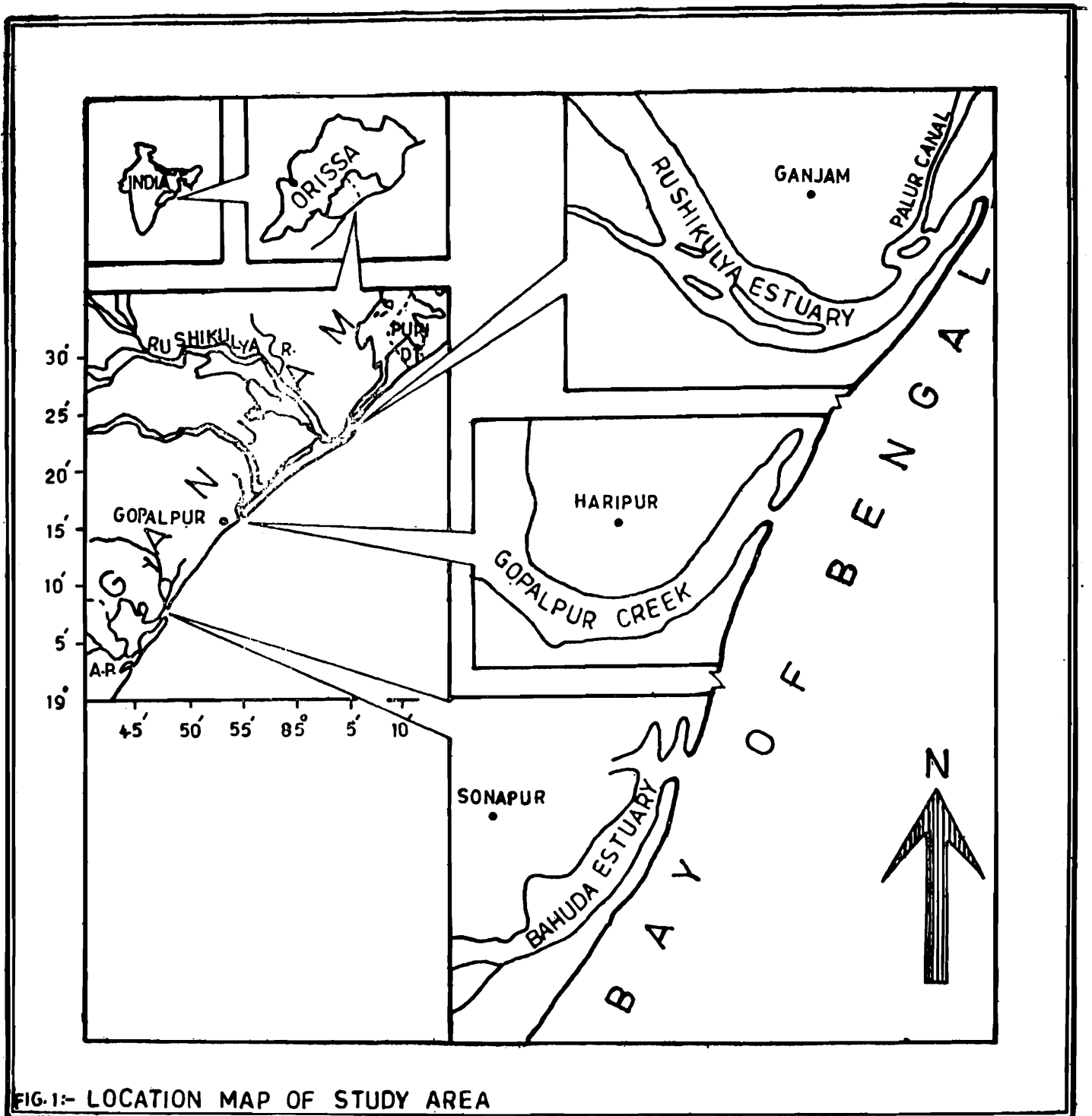
INTRODUCTION

Estuarine fish fauna exhibit enormous diversity in their morphology and form an important constituent of our coastal ecosystem as well as the economy of a maritime country like India. A proper knowledge of their availability in our estuaries is a prerequisite for the successful development of estuarine fisheries and their conservation as man's recent increasing modification of this environment causes disturbance or threats for their decline. Estuarine fish fauna have been studied by Chacko *et al.*, 1954 ; Thampi, 1959 ; Rao, 1964 ; Shetty *et al.*, 1965 ; Mahapatra, 1966 ; Tilak, 1969 ; Gopalakrishnan, 1973 ; Raman & Patnaik, 1976 ; Silas *et al.*, 1980 ; Nair *et al.*, 1983, 1984 ; Rama Rao *et al.*, 1992 to a greater extent. However, there is no published information or rather sporadic information on fish fauna from estuaries of Ganjam District. It is, therefore, attempted in this investigation to identify all the fishes occurring in estuaries and creek of this district. The present communication is the first report on the fish fauna of estuarine water bodies of this district.

Ganjam District is one of the four maritime districts situated ($18^{\circ}46'-20^{\circ}17'$ N to $83^{\circ}48'-85^{\circ}11'$ E) in the southern part of Orissa. Within its 60 kms. of coastline, about 3000 hectares of estuarine habitats i.e. the Rushikulya ($19^{\circ}22'-19^{\circ}27'$ N and $85^{\circ}02'-85^{\circ}05'$ E), the Bahuda ($19^{\circ}5'-19^{\circ}10'$ N and $84^{\circ}45'-84^{\circ}50'$ E) and the Gopalpur creek ($19^{\circ}15'-19^{\circ}21'$ N and $84^{\circ}54'-84^{\circ}56'$ E) (Fig. 1) open into the Bay of Bengal on a narrow continental shelf subjecting tidal influence to these coastal water bodies.

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MATERIALS and METHODS

A number of local surveys have been carried out during the years 1980-1986 to the Rushikulya estuary, Gopalpur creek and Bahuda estuary. The fish specimens were collected

from the cast nets and seine nets used commonly. The representative samples of fishes were duly preserved in 10% formalin and identification were carried out following Day, 1889 ; Munro, 1955 ; Fischer & Bianchi, 1984 ; Fischer & Whitehead, 1974 ; Jayaram, 1981 ; Talwar & Kacker, 1984 ; Khora, 1986, 1992 and 1993. The classification adopted is after Nelson (1984) with a few deviations based on results of the recent works. All the examined samples are deposited in the National Zoological Collections maintained at Estuarine Biological Station, Zoological Survey of India, Berhampur, Orissa after identification.

RESULTS and DISCUSSIONS

The present qualitative analysis based on collection and observation of representative samples of fishes revealed a wealth of varieties of fish fauna inhabiting the estuarine ecosystem of the Ganjam District, Orissa. A total of 70 species belonging to 12 orders, 14 suborders, 39 families, 8 subfamilies and 52 genera are recorded in this study. Up-to-date systematic accounts and scientific names with authority, equivalent English names, the local Oriya name (s), full details of the species occurrence, and their economic importance have been presented in Table-1. Of the 70 species recorded, 2 are chondrichthyes (cartilaginous fishes) belonging to order Rajiformes and family Dasyatidae (stingrays) and the remaining are osteichthyes (bony fishes). Most of the families are represented by one or two species while families which have good representation are Cyprinidae (5 species), Ariidae (4 species), Carangidae (6 species), Mugilidae (4 species) and Gobiidae (4 species). The majority of species are typically marine and some are occasional visitors. The species i.e., *Mystus gulio*, *Platycephalus indicus*, *Ambassis gymnocephalus*, *Sillago sihama*, *Gerres filamentos*, *Mugil cephalus*, *Liza parsia*, *Glossogobius biocellatus*, *Oxyurichthys microlepis* and *Cynoglossus semifasciatus* are found from all these three water bodies. This indicates their wide range of tolerance of physicochemical parameters of these coastal waters. Therefore, these species can be taken up for coastal aquaculture in this region. Presently, the Clupids, Cyprinids, Bagrids, Ariids, Carangids and Mugilids are most common groups contributing substantially to the local capture fisheries. Among the mullets, *Mugil cephalus* and *Liza parsia* are most common and caught round the year. Out of the total species recorded by this study, 38 species have commercial importance.

Table 1. Classified list of fish fauna of the estuaries/creek of Ganjam District (Orissa)

Systematic position of Species	English name	Local name (s)	RE	GC	BE
Grade : PISCES					
Class : CHONDRICHTHYES—cartilaginous fishes					
Subclass : ELASMOBRANCHII					
Order : RAJIFORMES					
Family : DASYATIDAE—stingrays & butterflyrays					
Subfamily : DASYATINAE—stingrays					
1. <i>Dasyatis jenkinsii</i> (Annandale)	Sharpnose stingray	Sankucha	—	—	+
2. <i>Dasyatis uarnak</i> (Forsskal)	Honeycombed stingray	Sankar	—	—	+
Class : OSTEICHTHYES—bonyfishes					
Subclass : ACTINOPTERYGII—modern bonyfishes					
Order : ELOPIFORMES					
Suborder : ELOPOIDEI					
Family : ELOPIDAE—ladyfishes, tenpounders					
3. <i>Elops machnata</i> (Forsskal)*	Tenpounder	Jallungu, Nahana	—	+	+
Order : ANGUILLIFORMES					
Family : OPHICHTHIDAE—snake eels					
4. <i>Callechelys longipinnis</i> Kner & Steindachner*	Shorttailed snake eel	Donna	+	+	—
Family : CONGRIDAE—conger eels					
5. <i>Conger cinereus</i> Ruppell*	Indian conger eel	Denwa	—	+	—

Note : * Commercially important
RE—Rushikulya Estuary

+ Found — Not found
GC—Gopalpur Creek BE—Bahuda Estuary

Order : CLUPEIFORMES

Suborder : CLUPEOIDEI

Family : CLUPEIDAE—sardines, shads

Subfamily : CLUPEINAE—sardines

6. <i>Sardinella fimbriata</i> (Valenciennes)*	Lesser sardine	Kabala	+	-	-
Subfamily : ALOSINAE—shads					
7. <i>Hilsa ilisha</i> (Hamilton-Buchanan)*	Hilsa shad	Ilishi	+	-	-
8. <i>Hilsa kelee</i> (Cuvier)	Kelee shad	Pandapila	-	+	+
Family : ENGRAULIDAE—anchovies					
Subfamily : ENGRAULINAE					
9. <i>Stolephorus commersonii</i> Lacepede*	Commerson's anchovy	Chwali-patw	+	-	-
10. <i>Stolephorus indicus</i> (Van Hasselt)	Indian anchovy	Balikokili	+	-	-
11. <i>Thryssa malabarica</i> (Bloch)	Malabar thryssa	Phasa	-	+	+

Order : CYPRINIFORMES

Family : CYPRINIDAE—minnows & carps

12. <i>Esomus danricus</i> (Hamilton-Buchanan)*	Flying barb	Jhai	-	-	+
13. <i>Puntius filamentosus</i> (Valenciennes)*	Blackspot barb	Guldi	-	-	+
14. <i>Puntius sophore</i> (Hamilton-Buchanan)*	Common barb	Patia kerandi	-	-	+
15. <i>Puntius ticto ticto</i> (Hamilton-Buchanan)*	Tirefin barb	Kudji kerandi	-	-	+
16. <i>Salmostoma bacalla</i> (Hamilton-Buchanan)	Chela	Jellarhi	-	+	+
Family : COBITIDAE—loaches					
17. <i>Lepidocephalus (Lepidocephalichthys) guntea</i> (Hamilton-Buchanan)	Lesser loach	Kondaturi, Thora Jupkari	-	-	+

Order : SILURIFORMES

Family : BAGRIDAE—bagrid catfishes

18. <i>Mystus bleekeri</i> (Day)*	Indian catfish	Kontia, Guntea	-	-	+
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19.	<i>Mystus cavasius</i> (Hamilton-Buchanan)*	Dwarf catfish	Tengra, Kontia	-	-	+
20.	<i>Mystus gulio</i> (Hamilton-Buchanan)*	Longwhisker catfish	Kontia	+	+	+
Family : ARIIDAE—seacatfishes						
21.	<i>Arius arius</i> (Hamilton-Buchanan)*	Hamilton's catfish	Singada, Kontia	+	-	-
22.	<i>Arius caelatus</i> Valenciennes	Engraved catfish	Kontia, Singada	+	-	-
23.	<i>Arius maculatus</i> (Thunberg)	Spotted catfish	Kontia, Singada	-	-	+
24.	<i>Arius tenuispinis</i> Day	Day's catfish	Shingada, Kontia	-	-	+
Family : PLOTOSIDAE-catfish eels						
25.	<i>Plotosus lineatus</i> (Thunberg)	Striped catfish eel	Kamda, Kaunda	-	+	-
Order : CYPRINODONTIFORMES						
Suborder : EXOCOETOIDEI						
Family : HEMIRAMPHIDAE—half beaks						
26.	<i>Hyporhamphus xanthopterus</i> (Valenciennes)*	Redtipped halfbeak	Gania, Ganga- tur	-	+	-
Family : ORYZIIDAE—topminnow						
27.	<i>Oryzias melastigmus</i> (McClelland)*	Estuarine topminnow	Kauradia, Kanakuri Bor-ro-guddi	-	+	-
Order : SYNGNATHIFORMES						
Family : SYNGNATHIDAE—seahorse & pipefishes						
28.	<i>Microphis brachyurus</i> (Bleeker)	Short-tailed pipefish	Balipoka	+	-	-
Order : SCORPAENIFORMES						
Family : APLOACTINIDAE—velvetfishes						
29.	<i>Vespicula niger</i> (Cuvier)	Black smooth stingfish		-	+	-

Suborder : PLATYCEPHALOIDEI

Family : PLATYCEPHALIDAE—flatheads

Subfamily : PLATYCEPHALINAE

30. *Platycephalus indicus* Linnaeus*

Indian flathead Tokoro + + +

Order : PERCIFORMES

Suborder : PERCOIDEI

Family : AMBASSIDAE—glassfishes

31. *Ambassis commersoni* Cuvier

Commerson's glassfish Kokurvi, - + +
Pholgrae

32. *Ambassis gymnocephalus* (Lacepede)

Nakedhead glassy perch Chandee + + +

Family : SERRANIDAE—seabasses, groupers

Subfamily : EPINEPHELINAE

33. *Promicrops lanceolatus* (Bloch)*

Mottled brown seabass Kolaji - + -

Family : TERAPONIDAE—grunters

34. *Terapon jarbua* (Forsskal)*

Jerbua terapon Gahana, + - +
kora

Family : SILLAGINIDAE—whitings

35. *Sillago sihama* (Forsskal)*

Silver sillago Toul + + +
danti

Family : CARANGIDAE—jacks, kingfishes

36. *Carangoides armatus* (Ruppell)

Longfin cavalla Tirana - - +

37. *Caranx carangus* (Bloch)

Blacktailed trevally Konti + - +

38. *Caranx ignobilis* (Forsskal)

Yellowfin jack Kanto - + +

39. *Megalaspis cordyla* (Linnaeus)*

Hardtail scad Vorsa - + +

40. *Scomberoides tala* (Cuvier)

Deep queenfish Kanto - + -

41. *Scomberoides tol* (Cuvier)

Slender queenfish Khadisa, - - +
Parei

Family : LUTJANIDAE—snappers

42. *Lutjanus johni* (Bloch)*

John's snapper Angarua, + + -
Kokarba

43. *Lutjanus kasmira* (Forsskal)*

Bluebanded snapper Soosta - + -

Family	:	LOBOTIDAE—tripletalis				
44.		<i>Datnioides quadrifascianus</i> (Sevastianov)	Fourband tripletail	Khuranti	—	+ —
Family	:	GERPEIDAE—mojarras				
45.		<i>Gerres filamentosus</i> Cuvier*	Whipfin mojarra	Jagili	+	+ +
Family	:	SPARIDAE—seabreams, porgies				
46.		<i>Acanthopagrus latus</i> (Houttuyn)	Yellollowfin seabream	Galamara	—	+ +
Family	:	MULLIDAE—goatfishes				
47.		<i>Upeneus (Pennon) tragula</i> (Richardson)	Darkbanded goatfish	Gulibinda	—	+ —
48.		<i>Upeneus (Upeneus) sulphureus</i> Cuvier*	Yellow goatfish	Gulibinda	+	— —
Family	:	SCATOPHAGIDAE—scats, butterfishes				
49.		<i>Scatophagus argus</i> (Linnaeus)*	Spotted butterfish	Pita chandee Kura chandee	+	— —
Suborder	:	MUGILOIDEI				
Family	:	MUGILIDAE—mullet				
50.		<i>Liza parsia</i> (Hamilton-Buchanan)*	Goldspot mullet	Meji, Mejia	+	+ +
51.		<i>Mugil cephalus</i> Linnaeus	Flathead grey mullet	Khainga, Kabala	+	+ +
52.		<i>Valamugil seheli</i> (Forsskal)*	Bluespot grey mullet	Megi	+	— —
53.		<i>Valamugil speigleri</i> (Bleeker)	Speigler's grey mullet	Meji, Chanara	+	— —
Suborder	:	POLYNEMOIDEI				
Family	:	CALLIONYMIDAE—dragonet				
54.		<i>Callionymus sagitta</i> Pallas	Arrowheaded dragonet		+	— —
Family	:	ELEOTRIDAE—sleepers, gudgeons				
55.		<i>Butis melanostigma</i> (Bleeker)	Gudgeon	Gagi-balakhera	—	+ —
56.		<i>Eleotris fusca</i> (Bloch & Schneider)	Brown gudgeon	Bundi, Balakhera	—	+ +

57. <i>Ophiocara porocephalus</i> (Valenciennes)	Porocephalus gudgeon	Gagi- balakhera	-	+	-
Suborder : GOBIOIDEI					
Family : GOBIIDAE—gobies					
Subfamily : GOBIINAE					
58. <i>Chiramenu fluviatilis</i> Rao	Rao's goby	Gola	-	+	+
59. <i>Glossogobius biocellatus</i> (Valenciennes)	Twospot goby	Neuli	+	+	+
60. <i>Glossogobius giuris giuris</i> (Hamilton- Buchanan)*	Bareyed goby	Bali- garada, Gola,	+	-	+
61. <i>Oxyurichthys microlepis</i> (Bleeker)	Smallscaled goby	Gula	+	+	+
Family : GOBIOIDIDAE—eellike gobies					
Subfamily : TRYPACHENINAE					
62. <i>Trypauchen vagina</i> (Bloch & Schneider)	Burrowing goby	Pania, Aunda	-	+	-
Suborder : ACANTHUROIDEI					
Family : SIGANIDAE—rabbit fishes, spinefoot					
63. <i>Siganus canaliculatus</i> (Park)	Whitespotted spinefoot	Worahmah	+	-	-
Suborder : CHANNOIDEI					
Family : CHANNIDAE—snakeheads					
64. <i>Channa punctatus</i> (Bloch)*	Green snake- head	Godissa	-	-	+
Family : MASTACEMBELIDAE—spiny eels					
65. <i>Mastacembelus pancalus</i> (Hamilton- Buchanan)	Spiny eel	Baira, Turibahru	-	-	+
Order : PLEURONECTIFORMES					
Suborder : PLEURONECTOIDEI					
Family : BOTHIDAE—lefteye flounders					
66. <i>Pseudorhombus arsius</i> (Hamilton- Buchanan)	Largetoothed flounder	Potpotia	-	+	-
Suborder : SOLEODEI					
Family : CYNOGLOSSIDAE—tongue soles					

67. <i>Cynoglossus cynoglossus</i> (Hamilton-Buchanan)	Bengal tongue sole	Kukurjivo	—	—	+
68. <i>Cynoglossus semifasciatus</i> Day	Indian tongue sole	Kukurjivo	+	+	+
Order : TETRAODONTIFORMES					
Suborder : BALISTOIDEI					
Family : BALISTIDAE —triggerfishes					
69. <i>Abalistes stellatus</i> (Lacepede)	Starry triggerfish	Ratijalka	—	+	—
Suborder : TETRAODONTOIDEI					
Family : TETRAODONTIDAE—puffers, blowfishes					
70. <i>Chelonodon patoca</i> (Hamilton-Buchanan)	Gangetic blowfish	Bengaphulla	+	+	—

SUMMARY

Fish fauna of the Rushikulya estuary (29 species), Gopalpur creek (38 species) and Bahuda estuary (39 species) of Ganjam district in South Orissa is listed. A total of 70 species belonging to 12 orders, 14 sub-orders, 39 families, 8 sub-families and 52 genera have been recorded. Majority of the fish fauna in these waters are of marine origin as most of the species are also recorded along the adjoining Ganjam coast. Clupeids, bagrids, ariids and mugilids are the most common groups contributing substantially to the local fisheries.

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