

Fishes of HOOGHLY ESTUARY



Hundred species of bony fishes —
a pictorial field guide



Central Inland Fisheries Research Institute
(Indian Council of Agricultural Research)
Barrackpore, Kolkata - 700120, West Bengal



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Amitabha Ghosh



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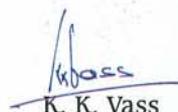


FOREWORD

The Hooghly estuarine system and its associated downstream coastal ecosystems are very important in terms of fisheries in its diversity, scale of operation and support to livelihood. The winter bag-net fishery is very specific to this ecosystem. The scientists of CIFRI have been monitoring this ecosystem for its ecology, fishery and environment and have generated very useful database. But there have been very few attempts to develop a pictorial documentation of important fish species available in this ecosystem.

The present attempt made by the author to develop a pictorial document of one hundred important fish species recorded in the Hooghly estuary is praiseworthy.

I am sure, it will be helpful to new students/scholars and technical personnel, working on fish sample collection and their identification, of the estuarine ecosystems in the country.



K. K. Vass

Director

CIFRI

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PROLOGUE

A prime pre-requisite for generation of data pertaining to fish bio-diversity study and fish catch statistics is spotting or identifying a fish in the field as precisely as possible. This book is aimed at helping the field workers, particularly those who are not acquainted very much with fish types, and therefore, should not be construed from the taxonomic point of view. A few identifying characters (mainly colouration, barbels, fins etc.) have been given against each of the fishes included in this document, so as to provide some guidance to the persons collecting data in the field. The description of the fishes have been taken from different standard sources, which have been referred to at the end of this document and also from data generated in the fish biology laboratory of CIFRI. The photographs provided in this document may help spotting the fishes but may sometimes not match exactly with the specimens. It is therefore, advisable to consult standard books for confirmation. Some of the photographs taken from preserved specimens may not be upto the level desired. This primary document may have some mistakes and users are requested to point out those so that the document may be improved by future compilers. Any suggestion for improvement is most welcome. I strongly believe that the document will be of some help to the field personnel and the students of fishery science. A supplementary book is contemplated for accommodating more species including the cartilaginous fishes of the Hooghly estuary.

AUTHOR

Fish Bio-diversity of the Hooghly Estuary

- A Brief Account

The river Ganga (The Ganges) divides into two main channels in West Bengal, the one that passes through West Bengal is known as Bhagirathi (added by two other rivers e.g., Jalangi and Churni, originating from river Ganga and finally meeting Bhagirathi) and the other that enters Bangladesh is known as Padma. The lower portion of the river Bhagirathi where the tidal impact is observed is known as Hooghly river or Hooghly estuary. In its down stream Hooghly is strengthened by the water of its tributaries e.g., Damodar, Rupnarayan and Haldi.

Hooghly is the largest estuary in India covering a distance of about 295 km from the sea face (confluence point with Bay of Bengal) to Nabadwip in the district of Nadia, West Bengal. The main Hooghly is regarded as a positive estuary of mixohaline nature where the salinity ranges from freshwater condition (salinity even below 0.1 ‰) to > 30 ‰ in different parts and during different seasons from the head of the estuary to the confluence points with the Bay of Bengal. Such variation in the salinity in different parts of the Hooghly estuary led different authorities to postulate different salinity zone wise longitudinal divisions of the estuary. Menon *et. al.*, 1972 opined that the demarcation of the estuary into rigid salinity zones was not practicable. These authors (1972) proposed three zones, each covering about 60 miles (about 97km), for the purpose of biological studies -- The freshwater zone between Nabadwip and Barrackpore, the transitional zone between Barrackpore and Falta and the lower saline zone from Falta to sea face. Pillay and Ghosh (1962) divided the whole Hooghly - Matlah estuarine system into five zones based on the nature of fishing operations and the ecological

conditions governing them. Gopalakrishnan, 1972 postulated a biological zonation of the Hooghly-Matlah estuarine system taking into consideration the tidal regimes, salinity characteristics, nature of fauna etc. During different periods of over last 100 years or so the salinity regime of the Hooghly estuary has changed due to change in discharge of freshwater from Ganga to Bhagirathi-Hooghly channel particularly during mid 1950's to mid 1970's prior to the installation of Farakka barrage. However, after commissioning of the Barrage the increased freshwater discharge has changed the scenario. Salinity being a very critical chemical factor in governing the faunal distribution, the changes in salinity pattern of the Hooghly estuary has led to changes in the bio-diversity of the estuary including fish diversity in different regions. The estuary now needs a re-zonation from the point of view of water salinity. The freshwater zone has now been extended to almost Diamond Harbour and the transitional zone may be considered as has been shifted further below Diamond Harbour to Kakdwip, while the high saline zone is restricted to Sagar and Frazergunj-Bakkhali in the lower most part of the estuary. Investigations conducted by CIFRI over the years demonstrated that most (80 to more than 90%) of the total fish catch from Hooghly estuarine system comes from the high saline zone and of that more than 70 % comes from winter bag net fishery. Gears of different kinds are operated in the estuary of which bag nets (Been jal) contribute bulk of the total landing during winter months. Been jals, however, are operated in upper freshwater region of the estuary also. Other gears operated include small and large seines, trawls, set-gill, drift-gill, set-barrier, cast net, lift net, hooks and lines etc.

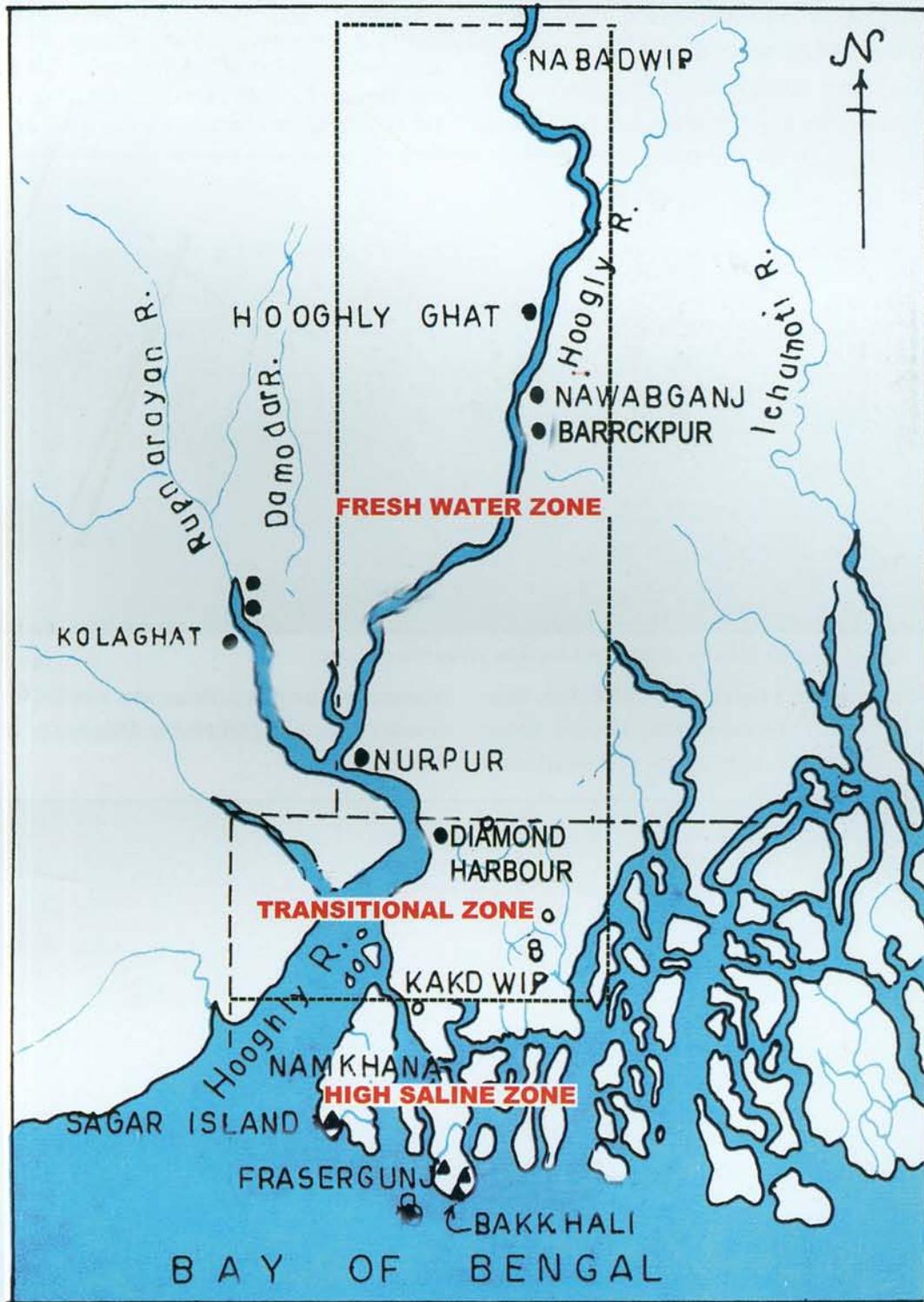


A view of Hooghly Estuary at Barrackpore (Fresh water zone)

There are many reports on the fish diversity of the Hooghly estuary. Gopalakrishnan listed 133 species covering the freshwater to high saline zone and including the Matlah and Rupnarayan estuaries, while Jhingran (1991) reported 172 species from Hooghly - Matlah estuarine system of which 57.56% is constituted of species of more saline seaward zone. Talwar et. al., (1992) while dealing with marine and estuarine fishes of West Bengal have dealt with fishes of Hooghly estuary also. Similarly Sen, 1992 while giving an account of the freshwater fishes of West Bengal mentioned about some of the species in the freshwater part of Hooghly estuary. David (1954) recorded 82 species of fishes from a 5 mile stretch in the freshwater zone of the Hooghly estuary. Menon et. al., (1972) gave a list of 114 species of fishes depending upon the records of fishes collected by Dr. S. L. Hora and Dr. A. David. Sinha, et. al., 1998 while giving a list of fishes in the river Ganga also mentioned about the fishes found in the lower stretch. Recent investigations conducted

by CIFRI to evaluate the present status of fish diversity in a 12 km stretch in the freshwater zone of the Hooghly estuary between Bichalighat and Barrackpore (Ghosh, 2007) revealed a change in the fish fauna in this stretch, compared to Pre-Farakka period, with a shift of most of the brackish water fish species to further down stream. *Sicamugil cascasia* a small mullet, could be recorded for the first time from the freshwater zone of the Hooghly estuary. On the other hand the spotted codlet, *Bregmaceros mccllellandi*, which was regarded rather a rare species has now been found to be well available in the lowermost part of the Hooghly estuary and also in the Sundarbans estuaries. *Oreochromis niloticus* has been recorded for the first time from the freshwater zone of the Hooghly estuary which is probably the first record of any exotic species from the tidal zone of the river Ganga. Though changes in the salinity altered the habitats for some species in this stretch it offered congenial condition for some

Salinity Zones of Hooghly Estuary



other species. Data on such changes in the fish-biodiversity in this estuary, with the changes in the habitat condition, are of immense importance from the point of view of fisheries management. During the present course of studies 155 species of bony fishes

skates/ rays belonging to two Orders and four Families could also be recorded from the lower-most high saline zone of the estuary. Many species might have escaped our observations and thus the list of bony fishes provided along with this document should not be considered in any way as final and



A view of Hooghly Estuary at Diamond Harbour (Transitional zone)

belonging to 18 Orders and 67 Families were encountered / recorded from different zones of the estuary. Five species of shark and

continuous investigations are needed to develop more comprehensive documents in future.



A view of Hooghly Estuary at Frasergunj (High saline zone)

Bony fishes recorded from the Hooghly Estuary

Order : Anguilliformes

Family : Anguillidae

1. *Anguilla bengalensis* (Gray)

Family : Ophichthidae

2. *Pisodonophis boro* (Hamilton-Buchanan)

Order : Osteoglossiformes

Family : Notopteridae

1. *Notopterus notopterus* (Pallas)
2. *N. chitala* (Hamilton-Buchanan)

Order : Clupeiformes

Family : Clupeidae

1. *Tenualosa ilisha* (Hamilton-Buchanan)
2. *Hilsa kelee* (Cuvier)
3. *Gudusia chapra* (Hamilton-Buchanan)
4. *Gonialosa manmina* (Hamilton-Buchanan)
5. *Corica soborna* Hamilton-Buchanan
6. *Anodontostoma chacunda* (Hamilton-Buchanan)
7. *Sardinella melanura* (Cuvier)

Family : Chirocentridae

8. *Chirocentrus dorab* (Forsskal)

Family : Pristigasteridae

9. *Raconda russeliana* Gray
10. *Ilisha filigera* (Valenciennes)

Family : Engraulidae

11. *Coilia dussumieri* Valenciennes
12. *C. ramcarati* (Hamilton-Buchanan)
13. *C. reynaldi* Valenciennes
14. *Setipinna phasa* (Hamilton-Buchanan)
15. *S.taty* (Valenciennes)
16. *S.brevifilis* (Valenciennes)

17. *Stolephorus indicus* (van Hasselt)

18. *Thryssa purava* (Hamilton-Buchanan)

Order : Cypriniformes

Family : Cyprinidae

1. *Catla catla* (Hamilton-Buchanan)
2. *Labeo rohita* (Hamilton-Buchanan)
3. *Labeo calbasu* (Hamilton-Buchanan)
4. *Labeo bata* (Hamilton-Buchanan)
5. *Cirrhinus mrigala* (Hamilton-Buchanan)
6. *C. reba* (Hamilton-Buchanan)
7. *Puntius sophore* (Hamilton-Buchanan)
8. *P. ticto* (Hamilton-Buchanan)
9. *P. conchoniis* (Hamilton-Buchanan)
10. *P. sarana* (Hamilton-Buchanan)
11. *Salmostoma bacaila* (Hamilton-Buchanan)
12. *Danio devario* (Hamilton-Buchanan)
13. *Esomus danricus* (Hamilton-Buchanan)
14. *Rasbora daniconius* (Hamilton-Buchanan)
15. *Amblypharyngodon mola* (Hamilton-Buchanan)

Family : Cobitidae

16. *Lepidocephalus guntea* (Hamilton-Buchanan)
17. *Botia lohachata* Chaudhuri
18. *B. dario* (Hamilton-Buchanan)

Order : Siluriformes

Family : Bagridae

1. *Sperata aor* (Hamilton-Buchanan)
2. *Sperata seenghala* (Sykes)
3. *Mystus cavasius* (Hamilton-Buchanan)

4. *Mystus vittatus* (Bloch)
5. *Mystus gulio* (Hamilton-Buchanan)
6. *Rita rita* (Hamilton-Buchanan)

Family : Schilbeidae

7. *Ailia coila* (Hamilton-Buchanan)
8. *Eutropiichthys vacha* (Hamilton-Buchanan)
9. *Clupisoma garua* (Hamilton-Buchanan)
10. *Silonia silondia* (Hamilton-Buchanan)

Family : Pangasidae

11. *Pangasius pangasius* (Hamilton-Buchanan)

Family : Siluridae

12. *Wallago attu* (Schneider)
13. *Ompok bimaculatus* (Bloch)
14. *O.pabo* (Hamilton-Buchanan)
15. *O.pabda* (Hamilton-Buchanan)

Family : Sisoridae

16. *Bagarius bagarius* (Hamilton-Buchanan)
17. *Gagata cenia* (Hamilton-Buchanan)

Family : Claridae

18. *Clarias batrachus* (Linnaeus)

Family : Heteropneustidae

19. *Heteropneustes fossilis* (Bloch)

Family : Aridae

20. *Arius jella* Day
21. *Arius sona* (Hamilton-Buchanan)
22. *Osteogeneiosus militaris* (Linnaeus)

Family : Plotosidae

23. *Plotosus canius* Hamilton-Buchanan

Order : Aulopiformes

Family : Harpadontidae

1. *Harpodon nehereus* (Hamilton-Buchanan)

Family : Synodontidae

2. *Saurida tumbil* (Bloch)

Order : Gadiformes

Family : Bregmacerotidae

1. *Bregmaceros mccllellandi* Thompson

Order : Perciformes

Family : Centropomidae

1. *Lates calcarifer* (Bloch)

Family : Ambassidae

2. *Chanda nama* (Hamilton-Buchanan)
3. *Pseudambassis ranga* (Hamilton-Buchanan)
4. *Pseudambassis lala* (Hamilton-Buchanan)

Family : Leiognathidae

5. *Leiognathus equulus* (Forsskal)
6. *Secutor ruconis* (Hamilton-Buchanan)
7. *S. insidiator* (Bloch)
8. *Gazza minuta* (Bloch)

Family : Gerreidae

9. *Gerres filamentosa* Cuvier
10. *Gerres oyena* (Forsskal)
11. *Gerreomorpha setifer* (Hamilton-Buchanan)

Family : Lutjanidae

12. *Lutjanus johni* (Bloch)
13. *L. argentimaculatus* (Forsskal)

Family : Nandidae

14. *Nandus nandus* (Hamilton-Buchanan)
15. *Badis badis* (Hamilton-Buchanan)

Family : Anabantidae

16. *Anabas testudineus* (Bloch)

Family : Belontiidae

17. *Colisa fasciatus* (Schneider)
18. *Colisa lalius* (Hamilton-Buchanan)

Family : Kurtidae

19. *Kurtus indicus* Bloch

Family : Scatophagidae

20. *Scatophagus argus* (Linnaeus)

Family : Polynemidae

21. *Polynemus paradiseus* Linnaeus
22. *Eleutheronema tetradactylum* (Shaw)

Family : Uranoscopidae

23. *Uranoscopus cognatus* Cantor

Family : Gobiidae

24. *Brachygobius nunus* (Hamilton-Buchanan)
25. *Glossogobius giuris* (Hamilton-Buchanan)
26. *Pseudapocryptes lanceolatus* (Bloch & Schneider)
27. *Stigmatogobius sadanundio* (Hamilton-Buchanan)
28. *Periophthalmodon schlosseri* (Valenciennes)
29. *Boleophthalmus dussumieri* Valenciennes
30. *Gobiopterus chuno* (Hamilton-Buchanan)

Family : Gobioididae

31. *Odontamblyopus rubicundus* (Hamilton-Buchanan)
32. *Taenioides anguillaris* (Linnaeus)
33. *T. cirratus* (Blyth)

Family : Eleotrididae

34. *Eleotris fusca* (Bloch & Schneider)

Family : Sillaginidae

35. *Sillago sihama* (Forsskal)
36. *Sillaginopsis panijus* (Hamilton-Buchanan)

Family : Carangidae

37. *Carangoides malabaricus* (Bloch & Schneider)
38. *Caranx carangus* (Bloch)
39. *Megalaspis cordyla* (Linnaeus)

Family : Stromateidae

40. *Pampus argenteus* (Euphrasen)

Family : Parastromateidae

41. *Parastromateus niger* (Bloch)

Family : Ehippididae

42. *Drepene punctata* (Linnaeus)

Family : Mullidae

43. *Parupeneus indicus* (Shaw)
44. *Upeneus vittatus* (Forsskal)
45. *U. sulphureus* Cuvier

Family : Teraponidae

46. *Terapon jarbua* (Forsskal)
47. *T. theraps* (Cuvier)

Family : Trichiuridae

48. *Trichiurus savala* (Cuvier)
49. *T. haumala* Linnaeus

Family : Scianidae

50. *Pama pama* (Hamilton-Buchanan)
51. *Otolithoides biauritus* (Cantor)

Family : Lobotidae

52. *Lobotes surinamensis* (Bloch)

Family : Haemulidae

53. *Pomadasys maculatus* (Bloch)
54. *P. argenteus* (Forsskal)

Family : Sparidae

55. *Acanthopagrus latus* (Houttuyn)

Family : Cichlidae

56. *Oreochromis niloticus* (Linnaeus)

Family : Mugilidae

57. *Liza parsia* (Hamilton-Buchanan)
58. *L. tade* (Forsskal)
59. *L. macrolepis* (Smith)
60. *Mugil cephalus* Linnaeus
61. *Valamugil cunnesius* (Valenciennes)
62. *Sicamugil cascasia* (Hamilton-Buchanan)
63. *Rhinomugil corsula* (Hamilton-Buchanan)

Order : Mastacembeliformes

Family : Mastacembelidae

1. *Mastacembelus armatus* (Lacepede)
2. *M. pancalus* Hamilton-Buchanan
3. *Macrogathus aculeatus* (Bloch)

Order : Tetraodontiformes

Family : Tetraodontidae

1. *Tetraodon cutcutia* (Hamilton-Buchanan)

Family : Triacanthidae

2. *Tricanthus brevisrostris* Schlegel

Order : Cyprinodontiformes

Family : Hemiramphidae

1. *Hyporhamphus limbatus* (Valenciennes)

Family : Belontiidae

2. *Xenentodon cancila* (Hamilton-Buchanan)
3. *Strongylura strongylura* (van Hasselt)

Family : Oryziidae

4. *Oryzias melastigma* (McClelland)

Family : Aplocheilidae

5. *Aplocheilus panchax* (Hamilton-Buchanan)

Order : Syngnathiformes

Family : Syngnathidae

1. *Microphis cuncalus* (Hamilton-Buchanan)

Order : Dactyloformes

Family : Dactylopteridae

1. *Dactylopterus orientalis* (Cuvier)

Order : Channiformes

Family : Channidae

1. *Channa striatus* (Bloch)
2. *C. marulius* (Hamilton-Buchanan)

3. *C. punctatus* (Bloch)

4. *C. orientalis* (Schneider)

Order : Symbranchiformes

Family : Symbranchidae

1. *Monopterusuchia* (Hamilton-Buchanan)

Order : Pleuronectiformes

Family : Cynoglossidae

1. *Cynoglossus lingua* Hamilton-Buchanan
2. *Cynoglossus arel* (Schneider)
3. *Cynoglossus cynoglossus* (Hamilton-Buchanan)

Family : Soleidae

4. *Euryglossa orientalis* (Bloch & Schneider)
5. *Synaptura albomaculata* Kaup

Order : Scorpaeniformes

Family : Scorpaenidae

1. *Pterois russellii* (Bennet)

Family : Synanceiidae

2. *Minous coccineus* (Alcock)

Family : Platycephalidae

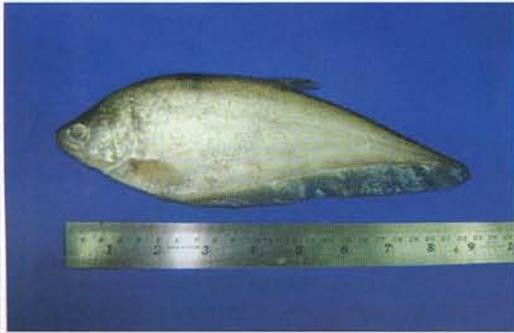
3. *Platycephalus indicus* (Linnaeus)

Order : Batrachoidiformes

Family : Batrachoididae

1. *Batrachichthys grunniens* (Linnaeus)

H. limbatus, *S. strongylura*, *X. cancila*, *O. melastigma* and *A. panchax* have been shown under order Cyprinodontiformes instead of two different orders. *H. nehereus* and *S. tumbil* have also been placed under one order — Aulopiformes.



***Notopterus notopterus* (Pallas)**

Common name in Bengali : Falui

Colour in life : The Falui is silvery white in colour with numerous very fine gray spots on the body. The dorsal margin is greenish-black. Eyes golden.

Some identifying characters : Body oblong and strongly compressed. Minute dorsal fin with 7-8 fin rays situated almost at the mid point between snout and the end of the caudal fin. Ventral fin also minute with 5-6 rays. Anal fin with 100-110 rays is confluent with the caudal fin. Head compressed, 3.5 to 4.5 times of total length; Pre-orbital serrated. About 28 serrations along the ventral edge between throat and the base of the ventral fin. Scales cycloid, those on the chicks much larger than those on the body. Lateral line complete. Mouth moderate, terminal; maxilla extends to mid-orbit. jaws equal. Lips thin. Dagger shaped tongue provided with strong incurved teeth; Highly muscular thick-walled pitcher shaped stomach. A pair of intestinal caeca situated on the left side at the junction of the anterior swollen part of the intestine and the posterior end of stomach. A rectal caecum is present on the right side of the posterior most part of the intestine.

General information : *Notopterus notopterus* is an air-breathing fish and reportedly may grow around 60 cm in length. The fish is well distributed in the fresh water zone of the Hooghly estuary and may occasionally be found in the low saline zone. Though there is no organised culture of this species of fishes, in multi species culture they are

sometimes introduced only when the other species have grown to a larger size. The fish is relished by the local population and fetches good price when sold in live condition.



***Notopterus chitala* (Hamilton- Buchanan)**

Common name in Bengali : Chital

Colour in life : Copper-brown on the dorsal side with transverse bars on the back, usually 15, alternating with bluish-green on the back. Small black blotches, 3-10, present in the caudal region.

Some identifying characters : Body oblong and strongly compressed with strongly humped dorsal profile. Minute dorsal fin with 9-10 fin rays situated much nearer to caudal fin than snout. Ventral fin also minute with 5-6 rays, Anal fin with 110-125 rays is confluent with the caudal fin. Head compressed, 4.5 to 5 times of total length; Pre-orbital entire. Dorsal profile of the head very convex. About 51 serrations along the ventral edge between throat and the base of the ventral fin. Scales cycloid, those on the chicks and on the body are small and of similar size. Lateral line complete. Mouth larger, terminal slightly upwardly directed; maxilla extends considerably beyond posterior edge of the eye. Dagger shaped tongue provided with strong incurved teeth; Highly muscular thick-walled pitcher shaped stomach. A pair of intestinal caeca situated on the left side at the junction of the anterior swollen part of the intestine and the posterior end of stomach. A rectal caecum is present on the right side of the posterior most part of the intestine.

General information : It is a highly priced fish relished in many parts of India. The abdominal portion is highly relished by the Bengalis. The fish is caught in good numbers in the uppermost part in the freshwater zone of the Hooghly estuary, particularly around Nabadwip. The fish was tried in CIFRI as a component in composite fish culture to keep a check on insects and small trash fishes. There is no organized culture of the species. But many fish farmers grow them along with other species of fishes in multi-species culture only when the other species have grown to a larger size. The fish has a great market demand.



***Tenualosa ilisha* (Hamilton-Buchanan)**

Common name in Bengali : Ilish

Colour in life : Lustrous silvery, generally with a bluish-green tint on the dorsal side. Tip of the snout with a little pinkish tint. No black spot/blotch in the adult. A row of black spots, sometimes indistinct, along the upper 3rd of immature specimens of which the most distinct one just behind the upper part of the operculum.

Some identifying characters: Upper jaw with a distinct median notch when viewed from above. Top of head remains covered with thick skin; Dorsal fin-rays 15-20 (The photographed specimen had 19). Caudal fin forked. Keeled abdomen; 16-17 scutes before and 14-16 behind the ventral fin (total scutes 30-33). RLG in adults vary between 1.57 and 3.21

General information : This shad is an anadromous one, ascending the Hooghly estuary during June to nearly the end of monsoon to breed in freshwater reaches. Such migratory run also takes place through other channels, e.g., Rupnarayan estuary of the Hooghly-- Matlah estuarine system. Upstream migration through Ichhamati.

estuary also takes place. A second winter migratory run is also reported. The normal habitat of the fish is in the coastal areas. Fry feed on zooplankters (87.5 - 100 %) mainly copepods. Advanced fry/early juveniles -- both zooplankton and phytoplankton (including diatoms); in specimens above 150 mm fairly good amount of decaying organic matter is encountered. Hilsa is the most commercially important of all the shads, is highly choiced by Bengalis for its test and flavour and fetches the highest market price.



***Hilsa kelee* (Cuvier)**

Common name in Bengali : Mukhpora ilish

Colour in life : Back slightly yellow or some times faintly blue green, flanks yellowish-silvery / golden dotted purple on sides. A distinct black blotch behind operculum, usually followed by some spots along flanks. Tips of anterior dorsal fin rays dusky; caudal tips faintly dusky.

Some identifying characters : Body fairly deep and compressed. Upper jaw with a distinct median notch when viewed from above. Top of head with many fronto-parietal striae, 8-14. No teeth on jaws. Gillrakers on inner arches distinctly curled outward. Keeled abdomen with 15-17 pre -pelvic and 12-14 post pelvic distinct scutes. No pectoral axillary scale. Pectoral with 16 and Dorsal with 17 rays. Scales above axil of pelvic-fin; Caudal forked. Hind part of body scales perforated.

General information : *Hilsa kelee* is a medium sized pelagic shad species in costal areas which does not form large shoal. Enters artisanal fisheries in the lower most part of the Hooghly estuary particularly during winter months. A very minor contributor to the fisheries of the Hooghly estuary. Is esteemed as food.



***Gudusia chapra* (Hamilton-Buchanan)**

Common name in Bengali : Khoira and Chapra

Colour in life : Silvery with a golden tinge, back slightly blackish. Dark black spot behind gill opening (on the shoulder) may sometimes be absent.

Some identifying characters : Upper jaw with a distinct notch. Dorsal fin almost at the middle. Origin of dorsal opposite or slightly before the ventral. Abdomen keeled with 26-29 scutes. A single, more or less triangular pectoral axillary scale.

General information : The species is found in the freshwater region of the Hooghly estuary. Constitute a minor fishery. Is relished as a food fish. The specimen figured here was collected from Monirampore, Barrackpore.



***Sardinella melanura* (Cuvier)**

Common name in Bengali : Kokila

Colour in life : Body blue -black on the back, flanks silvery with slight purple on the sides and below. Tip of caudal fin jet-black a

character by which it is distinguishable from all other Indian species of Sardinella.

Some identifying characters : Body compressed, belly strongly keeled with sharp and pointed scutes. 16-17 pre-pelvic and 12-13 post pelvic scutes. Eyes moderately large slightly reddish in colour. Lower jaw projecting beyond the upper. Dorsal fin originates before the mid-point of the body nearer to snout tip. Dorsal fin usually with 12- 13 branched rays.

Pelvic fin with 8 fin rays, is located almost near the belly. Pelvic origin below anterior half of dorsal. Scale cycloid, thin and deciduous.

General information : The species is caught in good numbers in the Frasergunj-Bakkhali and Sagar Island area in Winter months. It is relished by local people. The fish is used as dry fish also.



***Anodontostoma chacunda* (Hamilton-Buchanan)**

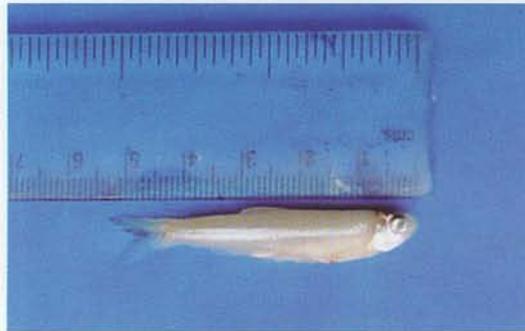
Common name in Bengali : Nona Khoira

Colour in life : Silvery with a large black blotch on the upper part and behind the operculum. The back may have little golden tint. There are faint lines in the upper 1/3rd of the body formed by spots along the rows of scales. There may be a pinkish tint at the tip of the snout.

Some identifying characters : Body deep and rather wide in the middle. Mouth inferior; maxilla relatively deep but thin; Snout projecting considerably beyond the gape of mouth. Dorsal fin-rays 13-16; last dorsal fin-

ray not filamentous like *Nematolosa nasus* (which has a similar appearance). Belly fully scuttled with 15-18 pre-pelvic and 9-12 post pelvic scutes.

General information : This gizzard shad is basically a marine /coastal fish but enters in the lower part of the Hooghly estuary particularly during post-monsoon and winter months.



***Corica soborna* (Hamilton-Buchanan)**

Common name in Bengali : Kanchki, Sona Khorke

Colour in life : Silvery with a tint of golden or yellow / light brownish with silvery shot with a faint lateral band.

Some identifying characters : Elongated and compressed body; Dorsal fin situated rather posteriorly towards the base of the caudal and behind the ventral; the last two rays of the anal fin is detached forming a separate fin-let. Abdomen keeled with 10 to 11 scutes anterior to ventral and 6 to 7 (generally seven) post ventral scutes. Caudal forked; lower lobe of the caudal slightly longer.

General information : The species which attains 4 to 5 cm in length contributes a minor fishery in the upper stretches of the freshwater zone of the Hooghly estuary and landed mainly by set-barrier (Charpata jal), lift-net, bag net etc. The species, however, is a priced one and relished by local people.



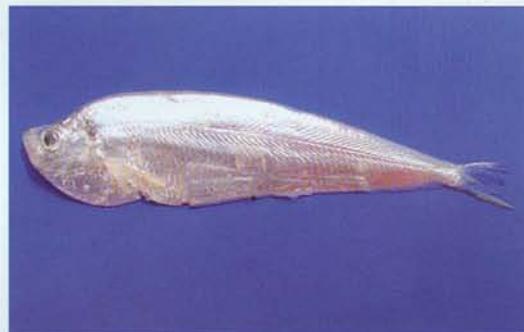
***Ilisha filigera* (Valenciennes)**

Common name in Bengali : Called "Dhela" in Fresergunj - Bakkhali area.

Colour in life : Flank silvery with a mother of pearl reflection ; back with a coppery tinge, margin of anal and caudal fins blackish.

Some identifying characters : Body moderately slender, fairly deep, compressed. Mouth upturned. Strongly keeled belly with 23-26 pre-pelvic and 11-13 post pelvic scutes. Dorsal fin almost at the mid-point of the body. Ventral fin very short. Caudal lobes fairly elongated.

General information : This is basically a coastal /marine species. Occasionally found in the lower most part of the Hooghly estuary (Near Fresergunj). Esteemed as a food fish.



***Raconda russeliana* Gray**

Common name in Bengali /local name : Rusila/ Khaira

Colour in life : Silvery with a bluish tint on the back and yellowish tint along the flank. A dark blotch behind the operculum.

Some identifying characters : Body elongated and compressed; upturned mouth ; dorsal profile of head concave, lower anterior part of the body convex; 33-38 scutes. lower jaw slightly projecting; Dorsal and pelvic fin absent. Anal fin very long extending more than half of the body.

General information : This is a common species in the lower part of the Hooghly estuary and the estuaries traversing through the Sundarbans. The species is mainly found during the winter months and is relished as a food fish.



Coilia dussumieri (Valenciennes)

Common name in Bengali : Amadi

Colour in life : Golden with 2-3 rows of round pearly/gold spots along the flank

Some identifying characters : Body elongated tapering from anterior to the posterior end. Belly slightly rounded with 5-6 scutes before and 7-9 after pelvic fin. Mouth sub-terminal, snout projecting beyond the mouth. Pectoral fin with 6 long filamentous upper fin rays reaching almost middle of the body. Dorsal fin rays 12-14. The presence dotted pearly light organs is the most easily identifiable character.

General information : This fish is common in the lower part of the Hooghly estuary and caught in good number in the winter months in particular. Esteemed as food.



Coilia ramcarati (Hamilton-Buchanan)

Common name in Bengali : Amadi

Colour in life : Golden brown with a darkish stain behind the operculum. No pearly spot found. The whole of the caudal has a blackish shed.

Some identifying characters: Body compressed tapering from the broader anterior to the posterior end. Belly rounded. Keeled behind pelvic fin base. Pectoral fin with 6-7 filamentous rays. 4 lower pectoral fin rays short. Just prior to the commencement of the dorsal fin there is a scute like spine.

General information : Found in the lower part of the Hooghly estuary and caught in good number in the winter months in particular. The species is esteemed as food. Also used as dry fish.



Coilia reynaldi (Valenciennes)

Common name in Bengali : Amadi

Colour in life : Slightly greenish golden back with silvery white belly. Fins yellowish without any black markings.

Some identifying characters : Body compressed tapering from the broader anterior to the posterior end. Belly rounded. The 12 upper pectoral fin rays, long and filamentous, extend almost to the middle of the total length of the fish. 6-9 scutes between pre-pelvic and 7-11 behind the ventral.

General information : The species is well available in the lower part of the Hooghly estuary and caught by bag-net (Beenjal), set barrier (Charpata jal) and small meshed gill nets in good number in the winter through summer months. In lower part of the estuary the fish breeds during March to July with peak in the last mentioned month in the Matlah and Rupnarayan estuary.



***Setipinna phasa* (Hamilton-Buchanan)**

Common name in Bengali : Phansa

Colour in life : Silvery with yellowish shades in the caudal region and also the pectoral fin base and some times brownish shade on the back and flank. In larger specimens the proximal part of the pectoral is blue-black.

Some identifying characters : Fusiform, compressed body, the strongly keeled abdomen bears 15 pre-pelvic and 6-7 post pelvic scutes. Pectoral fin filament long reaching the base of 15th to 39th anal fin ray. Pectoral fin rays branched, 14 in number. Anal fin rays 69-81. Caudal fin bifurcated, its upper lobe truncated, lower lobe longer than the upper lobe.

General information : This is a common species in the upper and middle part of the Hooghly estuary and caught substantially in the months of November to March/April. Though not very common the species is available in the low saline zone (Transitional zone) of the estuary.



***Setipinna taty* (Valenciennes)**

Common name in Bengali : Phansa

Colour in life : Silvery with yellowish shades in the flanks. Back yellowish brown. In larger specimens the proximal part of the pectoral is black/blue-black.

Some identifying characters : General appearance almost same as that of *S. phasa*. Pre-pelvic scutes 20-29, post pelvic - 10-13. First ray of pectoral fin filamentous reaching 23rd to last anal fin ray. Anal fin with 48-58 branched rays. Upper lobe of the caudal fin shorter than the lower lobe.

General information : This is one of the most common species in the lower part of the Hooghly estuary. Found in the Sundarbans area also. It is one of the prime contributors in the winter bag-net and small meshed dip nets during November to February.



***Chirocentrus dorab* (Forsskal)**

Common name in Bengali : Samudrik Chela/ Nona Chela

Colour in life : Lustrous silvery; Bluish tint along the back, with a brownish tint along the lower marginal part. Tail dusky, blackish.

Some identifying characters : Body elongated, strongly compressed, belly sharp edged but without scute. Mouth upturned, lower-jaw projecting beyond the upper. Canine teeth on both jaws; one pair of long, sharp teeth exist near the centre of the pre-maxillaries. Dorsal fin originates almost at the last 1/3rd part of the body with 16-19 rays. Anal fin origin almost parallel to the dorsal origin. Caudal fin bifurcated, bluish.

General information : This is basically a coastal/marine species. Very rarely found in the lowermost part of the Hooghly estuary (Near Fresergunj).



***Catla catla* (Hamilton-Buchanan)**

Common name in Bengali : Katla or Katol

Colour in life/ freshly caught specimens : Specimens caught from nature generally are greyish or blackish on the back, silvery with a tint of black on the flanks, silvery towards the ventral part of the abdomen. Fins dusky. Fishes grown in weed infested or turbid water bodies have darker colour.

Some identifying characters: Head large, broad; snout blunt with a thin, often black skin; wide upturned mouth with a moderately thick protruding lower lip ; Upper lip absent. Barbels absent. Operculum thick, massive in large specimens; Pectoral fin long reaching the pelvic. Caudal fin prominently forked; scales cycloid, comparatively large; lateral line complete with 40 to 43 scales. Body comparatively short, wide and deep.

General information : Catla (both young ones/advanced fingerlings and larger ones) found occasionally in the freshwater zone of the Hooghly estuary down to Nababgunj-

Barrackpore stretch. It is the fastest growing Indian major carp and is an excellent candidate for mixed culture of carps. Highly esteemed as a delicious food fish, the head of catla is liked by many Bengalis who prefer fish head preparations. The specimen figured here was collected from Nababgunj.



***Labeo rohita* (Hamilton-Buchanan)**

Common name in Bengali : Rohu, Rui

Colour in life/ freshly caught specimens : Bluish - black along the back. Sometimes black or grey. Flanks and abdomen silvery, sometimes red marks are seen on each scale particularly in larger specimens during breeding season. Sometimes the flanks may also be blackish.

Some identifying characters : Moderately elongated body with dorsal profile more convex than the ventral. Abdomen rounded. Head fairly large. Snout, devoid of lateral lobes, projecting beyond the jaws. Mouth inferior, lips rather thick and fringed above and below with distinct inner fold. Only one pair of short maxillary barbels which remain hidden in lateral groove. Dorsal fin located almost at the middle of the back between tip of snout and caudal base. Dorsal fin rays 15-16. Upper fringe of the dorsal fin slightly concave. Pectoral fin shorter than the head. Lateral line complete. Lateral line scales 40-44 .

General information : This is the most choiced species amongst the Indian major carps and is a very important component of multi-species piscicultural practices. It is a column /bottom feeder and feed on plankton and plant matters. Rohu has an alimentary canal several times longer than the body.

Stomach absent, the anterior dilated part of the alimentary canal is called intestinal bulb. The species matures in the second year of life. The fish is reported to grow about three feet in length. The species, though not frequently, is caught in the freshwater zone of the Hooghly estuary including Bichalight - Barrackpore stretch.



***Labeo calbasu* (Hamilton-Buchanan)**

Common name in Bengali : Kalbose, Kalibaus or Kalbaus

Colour in life/ freshly caught specimens : Grayish - black along the back. Sometimes black or gray. Flanks faint to moderately black and abdomen faint yellowish black, sometimes red marks are seen on each scale particularly in larger specimens during breeding season. Sometimes the flanks also may be blackish with greenish tint. Fins black.

Some identifying characters : Moderately elongated deep and strong body with dorsal profile more convex than the ventral. Abdomen rounded. Head fairly large. Snout, devoid of lateral lobes, projecting beyond the jaws. Mouth somewhat inferior, lips rather thick, fleshy and fringed above and below with distinct inner fold. Two pairs (rostral and maxillary) of short barbels. Dorsal fin located almost at the middle of the back between tip of snout and caudal base. Dorsal fin rays 16-26. Upper fringe of the dorsal fin slightly concave. Pectoral fin shorter than the head. Scales cycloid. Lateral line complete. Lateral line scales 40-44. Caudal fin deeply forked.

General information : The species is some times caught in the freshwater zone of the Hooghly estuary and encountered infrequently in the Bichalight-Nababgunj-Barrackpore stretch. Kalbose is a bottom feeder. The species has an alimentary canal several times longer than the body. Stomach absent, intestinal bulb present.



***Labeo bata* (Hamilton-Buchanan)**

Common name in Bengali : Bata

Colour in life/ freshly caught specimens : Silvery, darkest towards the back, often with a tint of golden yellow. Lower half of the body silvery. Pelvic and anal fins dark often with reddish orange tips. Fine black dots on all the fins.

Some identifying characters : Moderately elongated body with dorsal profile more convex than the ventral. Snout projecting beyond the mouth, often studded with pores. Mouth inferior, lips thin, lower lip a little bit fringed and folded. A small tubercle above the mandibular symphysis. Dorsal fin nearer to snout than caudal fin base. Pectoral fin as long as head. A very short maxillary pair of barbel.

General information : This species of minor carp is found in the upper fresh-water part of the Hooghly estuary. Though esteemed as food the fish constitute only minor/incidental fishery in this part of the estuary between Barrackpore and Nabadwip.



***Cirrhinus mrigala* (Hamilton-Buchanan)**

Common name in Bengali : Mrigal

Colour in life / freshly caught specimens : Body silvery with dark gray along the back. Belly whitish. Pectoral, pelvic and anal fins with orange tint along the margin. Dorsal and caudal fins dusky. Eyes with golden/reddish tint.

Some identifying characters : Moderately compressed body with rounded abdomen; Head small compared to rohu and catla. Length of head almost equal to depth of body. Snout blunt, obtusely rounded and often with pores. Mouth broad, downwardly; Upper lip complete, lower lip indistinct. Barbel small, one rostral pair but no maxillary barbel present. Dorsal fin with 15 to 19 fin-rays, originates well before pelvic origin; Dorsal fin may be as high as or slightly less than body height. Anal fin short with 7 or 8 rays. Caudal fin deeply forked. Lateral line complete with 40 to 45 scales. Scales cycloid.

General information : There exists a small fishery of the species in the freshwater zone of the Hooghly estuary and encountered infrequently in the Nababgunj-Barrackpore stretch. This major carp is one of the very important component of multi-species culture of carps. Mrigal is a bottom feeder. The species has an alimentary canal several times longer than the body. Stomach absent, the anterior dilated part of the alimentary canal is called intestinal bulb.



***Cirrhinus reba* (Hamilton-Buchanan)**

Common name in Bengali : Raichand, Khorke bata, Raibata, Reba

Colour in life : Blackish grey with bluish tint dorsally; flank and abdomen silvery, scales with dark edges; bluish longitudinal lines above lateral line in fresh specimens

Some identifying characters : Body elongate, compressed, abdomen rounded, dorsal profile slightly convex, snout projecting beyond mouth, with or, without pores, mouth ventrally placed, broad; upper lip fringed in juveniles, entire in adults. Pharyngeal teeth present. Barbels - one pair, short; sometimes absent, eyes moderately large; Dorsal fin slightly less than body height with 10-11 fin rays, placed

nearer to snout and slightly anterior to the origin of the pelvic; caudal fin deeply forked; scales hexagonal, cycloid giving a characteristic look; 5-6 rows between lateral line and base of the ventral fin. Lateral line complete with 35-38 lateral line scales.

General information : The fish is found in the freshwater zone of the Hooghly estuary, distributed in freshwater bodies in many parts of the Indian sub-continent. It, however, is occasionally found in the Nabadwip-Barrackpore stretch of Hooghly estuary. The species is an important food fish and relished by the local people. The fish breeds during monsoon months in the shallower parts of the river. The fish is reported to grow about 30 cm in length.



***Puntius conchonius* (Hamilton-Buchanan)**

Common name in Bengali : Kankan punti , Kanchan punti, Punti.

Colour in life / freshly caught specimens : Back shining greenish , flank and belly silvery with reddish tint. A large, almost round, black blotch, bordered by a slight yellowish area on the upper side of the caudal peduncle. Fins orange; upper half of dorsal fin blackish.

Some identifying characters : Both dorsal and ventral profile of the body convex. Head small, bluntly conical; barbels absent; A slight concavity over the nape after which there is a considerable rising curvature up to the base of the dorsal fin. Dorsal fin inserted at the middle of the body-- almost equidistant from the tip of snout and the base of the caudal fin; It's last un-branched ray osseous. The dorsal fin commences before the insertion of the ventral fin. Caudal fin forked. Lateral line generally incomplete.

General information : The fish is a beautiful one and can be reared in aquarium. The photographed specimen was collected from a set-barrier in the Monirampore area of Barrackpore. The species is sold along with other "chuno maach" (small miscellaneous fishes).



***Puntius sophore* (Hamilton-Buchanan)**

Common name in Bengali : Sona Punt

Colour in life/ freshly caught specimens : Lustrous silvery, back light gray with greenish tint; A round black blotch at the base of the caudal fin and a similar blotch at the lower central part of the dorsal fin, sometimes the blotch is at the base of the dorsal fin. In males major part of the anal and pelvic fins have a pinkish colour which becomes deep red/brick red prior to/during breeding season; In matured males a red band along the body, in females the band is not prominent. Belly silvery.

Some identifying characters : Head short its length 3.8 -4.1 times in standard length, but according to some may be a little more. Mouth terminal, barbel absent. Dorsal fin centrally placed between tip of the snout and caudal fin base. Lateral line complete. Lateral line scales 22-27.

General information : This species of the barbs, which grows to about 6 inches (maximum) in size is found only in the freshwater zone of the Hooghly estuary and generally in set-barrier landing or bag-net). Sona punti is so named because of its bright and lustrous yellowish colour. It is a costly food fish and also is very good as aquarium fish. A very common species found in the ponds, beels, lakes and ditches it is found to be very common in the set-barrier landings from the Nabadwip-Barrackpore stretch in the freshwater zone of the Hooghly estuary.



***Amblypharyngodon mola* (Hamilton-Buchanan)**

Common name in Bengali : Mouralla , Moya.

Colour in life : Silvery body with a deep silvery-gray lateral band. Usually with dark dots on dorsal, anal and caudal fin. Black dots may also be present on the body.

Some identifying characters: Body compressed. Dorsal profile more convex than the ventral profile. Length of head 5 in total length. No barbel. Pharyngeal teeth molariform. Dorsal fin soft, originates behind the origin of the ventral fin and situated at mid point. Lateral line incomplete extends upto 15 scales. Caudal deeply forked. Scales cycloid.

General information : Mouralla is purely a freshwater fish inhabiting freshwater bodies in different parts of India (except Malabar region), Bangladesh, Myanmar etc. In the Hooghly estuary the species is found in good numbers in the freshwater zone. The fish is a very popular one and fetches a high price. The largest specimen is reportedly 7.5 cm in length.



***Lepidocephalus guntea* (Hamilton-Buchanan)**

Common name in Bengali : Gute, Poa, Getu

Colour in life/freshly caught : Greenish brown on the back; yellowish with a greenish tint on the sides. A series of greenish/blackish

blotches or blocks from the back to some distance on the dorsal side. A black or greenish black band along the sides extending from behind the gill cover to even the caudal fin (sometimes from snout). Below this band a series of blackish blocks/blotches present.

Distinguishing features : This small fish has an elongated, moderately compressed body with a more or less rounded abdomen. Dorsal and ventral profile more or less straight except the depressed portion between head and origin of dorsal. Head small, conical. Length of head 6 in total length. 3 pairs of barbels. Head partly scaled. A bifid spine in the sub-orbital. Dorsal almost at the middle of the back. Inner ray of pectoral modified into a spine. Caudal generally entire, truncate or may even be slightly emarginate.

General information : The species which grows to about 9.5 cm in length is found in the freshwater zone of the Hooghly estuary. The fish is caught in small numbers mixed with other fishes in set-barriers. A tasty fish sold in the market alongwith other small fishes but of less market value. Found throughout West Bengal. In North Bengal, particularly in Doors area sold separately in "Bhaga" - small lots.



***Sperata aor* (Hamilton-Buchanan)**

Common name in Bengali : Aarh

Colour in life : Blue leaden on the back ; abdomen white. Fins yellowish, margin blackish. A black blotch on the adipose fin.

Some identifying characters : Body elongated, somewhat sub-cylindrical anteriorly. Large and long head with a depressed rounded snout. Head length 4.5--5 in total length. Upper surface of the head rugose in tuberculated ridges. The median longitudinal furrow reaches the occipital base. Occipital process not extending half way to the basal bone of the dorsal. Transversely oval eyes. Barbels 4 pairs. Maxillary barbels

reaching caudal base or even beyond. Dorsal fin with a weak spine and 7 soft rays. Pectoral spine stronger than dorsal. Base of the adipose dorsal equals base of the rayed dorsal. Origin of adipose dorsal nearer to rayed dorsal compared to *S. seenghala*. Deeply forked caudal with pointed lobes, the upper longer than the lower.

General information : Aarh is a very common species in the freshwater rivers. In Hooghly estuary it is found from Nabadwip down to Kolkata. Reported to attain about 180 cm in length. The species has good market demand.



***Mystus gulio* (Hamilton-Buchanan)**

Common name in Bengali : Nona tangra/gule tangra

Colour in life : Blackish on the back , dull white below. Margin of fins and barbels black.

Some identifying characters : Body elongated, slightly sub-cylindrical in the abdominal region, slightly laterally compressed posteriorly; Head 4.25-4.6 in total length. Snout broad and slightly depressed. Upper surface of the head rough and slightly granulated. Median longitudinal groove on the head does not reach the base of the Occipital. Occipital process rounded posteriorly. Moderately large eyes. Upper jaw slightly longer. Four pairs of barbels. Maxillary barbel long, reaching behind end of pectoral to beyond the base of anal. Nasal barbels short. Dorsal spine strong, finely serrated. Adipose fin with a short base. Pectoral spine strong, denticulated. Caudal forked-upper lobe longer than the lower, tip of the lobes may be a little blunt.

General information : The species is well distributed in the lower most saline zone of the Hooghly estuary. Also encountered in the Sundarbans estuarine complex. Contribute substantially in the aquacrop production of the estuarine wetlands. Can be adopted to freshwater. This commercial species is reported to grow around 45 cm but commonly encountered in less than 20 cm length. Has good market value.



***Mystus cavasius* (Hamilton-Buchanan)**

Common name in Bengali : Tangra

Colour in life : Blackish or leaden dorsally becoming yellowish/whitish on the sides and abdomen. A black blotch/ spot on the shoulder. Maxillary barbels blackish. Dorsal and caudal fins dusky.

Some identifying characters : Body elongated, slightly sub-cylindrical in the abdominal region, slightly laterally compressed posteriorly; Head 6-6.25 in total length. Snout obtuse. Upper jaw slightly longer. Upper surface of the head slightly rough. Median longitudinal groove extends upto the base of the occipital process. Barbels 4 pairs, nasal as long as head, maxillary pair reach the caudal base or even beyond it. Pectoral spine serrated. Adipose dorsal fin with a long base arising just behind the rayed dorsal.

General information : Reportedly grow to a maximum length of 45 cm. It is a very popular food fish and fetches a good market price. The species is well distributed in the freshwater bodies in different parts of India. The fish is found more or less in good numbers in the freshwater zone of the Hooghly estuary.



***Mystus vittatus* (Bloch)**

Common name in Bengali : Tangra, Sona tangra

Colour in life : Silvery with a golden tint. Several bluish or blackish longitudinal bands (usually 5) on flanks. A black shoulder spot. The margins of fins usually black.

Some identifying characters : Body elongated, slightly laterally compressed; Head 4.5-5 times in total length. Occipital process 3 times longer than the width at its base. Upper jaw slightly longer. Four pairs of barbels. Maxillary barbels long, reaching behind beyond the pelvic fins or even extending to the anal fin base. Dorsal spine weak, finely serrated in its inner margin. Adipose fin base is almost twice than the rayed dorsal fin base. Pectoral spine strong, denticulated with 14-16 teeth. Caudal forked-upper lobe longer than the lower.

General information : The species is highly relished by the local population and fetches good price. The fish has a wide range of distribution in freshwater bodies of India. In the Hooghly estuary it is fairly common in the freshwater zone and is usually caught by set-barriers. Sona tangra is also a good aquarium fish.



***Rita rita* (Hamilton-Buchanan)**

Common name in Bengali : Rithe /Ritha

Colour in life : Gray or deep ash with greenish tint. Belly rounded, dull white.

Some identifying Characters : Head large, slightly dorso-ventrally flattened. Eyes moderate, dorso-lateral ; Mouth sub-terminal situated a little ventrally, transverse. Three pairs of barbels -- nasal barbels minute, maxillary barbels reaching the operculum ; mandibular barbels situated ventrally towards the middle part on the two sides of the mandibular symphysis; Dorsal spine strong and long, thick at the base, serrated posteriorly on the upper part only. Pectoral fin with 7 - 10 rays; pectoral spine somewhat shorter than that of the dorsal and denticulated on both edges.

General information : Rita is one of the largest commercial cat-fish species reportedly attaining a length of about 150 cm. The species (juveniles) is caught in the freshwater/transitional zone of the Hooghly estuary mainly by Hooks; some times get entangled in the gill nets. Fingerlings are some times found in set barriers. The specimen figured here was collected from Nababgunj (near Barrackpore).



Wallago attu (Schneider)

Common name in Bengali : Boaal

Colour in life/fresh condition : Uniformly silvery, greenish grey on the back. Light blue-black patches behind the eyes. Flank and belly sometimes yellowish. Sometimes with golden yellow bands along the lateral line.

Some identifying characters : Body elongated, anterior abdominal part sub-cylindrical, gradually compressed laterally, narrowing down towards caudal base. Head large, depressed. Length of head 5.0-5.5 in total length. Eyes with free lids. Two pairs of barbels. No spine in dorsal fin. Adipose fin absent. Anal fin long. Caudal forked with upper lobe slightly larger than the lower.

General information : *Wallogo attu* is popularly known as freshwater shark. Found in the freshwater zone of the Hooghly estuary. Well distributed in rivers of India. This predaceous carnivorous species is reported to grow around 180 cm in length. Unsuitable for aquaculture. This tasty cat fish species has good market demand.



Ailia coila (Hamilton-Buchanan)

Common name in Bengali : Kojoli, Kajri, Piali, Bapati

Colour in life : Silvery, slightly greenish sometimes with 2 faint horizontal bands along the flank.

Some identifying characters : Body elongated strongly compressed. Length of head 6-7 in total length. Upper jaw longer, rather overhanged by snout. 4 pairs of barbels - long extending to almost middle of the body. Pectoral spine slender and about as long as head. Ventral small. No rayed dorsal fin. Adipose fin small towards posterior and above last sixth of anal fin. Anal fin long with 58-90 rays.

General information : Kajri is a highly relished food fish in Bengal. Grows to above 17 cm in length. Caught in good numbers in the freshwater zone of the Hooghly estuary.



Eutropiichthys vacha (Hamilton-Buchanan)

Common name in Bengali : Bacha, Kangon

Colour in life : Back silvery greyish/ blackish with bluish tint. Flanks and belly silvery. Pectoral and caudal fin edge usually black. Dorsal and Adipose greyish.

Some identifying characters : Body elongated and compressed; abdomen rounded. Head moderate in size 5.5-5.75 in total length. Eyes moderate with broad adipose lids. Mouth large, cleft of mouth a little oblique extending to about the posterior border of the orbit. Snout compressed and slightly pointed. Four pairs of barbels. The curvature of the back behind the head is convex. Dorsal fin short situated nearer to head with a weak spine and seven soft rays. The dorsal fin is inserted slightly advance or opposite to origin of pelvic fins. The adipose fin is minute. Anal fin long with 38-54 rays. Caudal forked. Lateral line complete.

General information : Vacha is a tasty catfish and has good market demand in west Bengal. The species is caught in good numbers in the freshwater zone of the Hooghly estuary particularly between Nabadwip and Barrackpore. The species is distributed in the freshwater bodies of Indian Sub-continent.



Pangasius pangasius (Hamilton-Buchanan)

Local name in Bengali : Pangus

Colour in life : Greenish-black above fading on the side. Abdomen white sometimes with yellowish tint, back sometimes with yellowish green. Side shot with pink/red. Chicks golden yellow.

Some identifying characters : Body elongate, a little sub-cylindrical anteriorly compressed posteriorly. Head of moderate size; length of head 5.5 to 6 in total length. Eyes located on the lower surface of the anterior part of the Head. Jaws sub-terminal, upper jaw slightly longer. Head blunt, distinctly granulated above. Mouth sub-terminal. Teeth small villiform on jaws and palate; Vomero -

palatine teeth in a crescentic band. Two pairs of barbels - maxillary extends to pectoral base. Pectoral spine strong, serrated. Dorsal spine moderately strong, serrated. Adipose dorsal short. Caudal fin deeply forked. Lateral line complete.

General information : Found from saline to freshwater zone. The species substantially contribute to the fishery of the Hooghly Estuary particularly during rainy season. Though the species is liked by many local people some do not take this fish since it eats foul and decaying animal and vegetable matters.



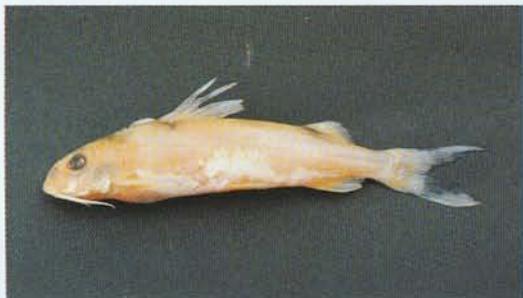
Bagarius bagarius (Hamilton -Buchanan)

Common name in Bengali : Bagar

Colour in life : Greyish/ brownish, distinctly marked with black /brownish bands and blotches. With scabrous skin. Caudal fin light yellowish-grey.

Some identifying characters : Head broad, moderately or strongly depressed. Body rather elongate. Length of head 3.7 in total length. Mouth broad, slightly inferior, upper jaw a little longer. Dentition in lower jaw markedly heterodont. Eyes small not visible from underside. Four pairs of barbels --- maxillary barbels long with broad base. Pectoral spine short, serrated. Dorsal spine almost smooth. Adipose fin origin posterior to anal fin origin. Caudal fin deeply forked, lobes often with filamentous extensions. Upper lobe longer than the lower.

General information : The species is well available in the freshwater zone of the Hooghly estuary but not relished as food. There is difference of opinion so far as the maximum length attained by the species. Reportedly it grows to about 220 cm in length.



***Gagata cenia* (Hamilton - Buchanan)**

Common name in Bengali : Keyakatta/Jungla

Colour in life : Yellowish dull grey in adults. Bronze, becoming silvery on the sides and abdomen in young. Some dark blotches along the back descending to half way down the sides. The first one is located across the nasal opening, the 2nd across the eye and the third is located across the occipital region. Young specimens with four dark dorsal blotches on back which extend to flanks below lateral line; adipose fin with a sharply defined black edge; caudal fin with a black stripe on each lobe.

Some identifying characters : Body short, compressed, abdomen rounded. Head short, somewhat elevated, compressed and narrow. Head length 4.5 to 5 in total length. Small subcutaneous eyes. Mouth small; teeth small and villiform on jaw. Barbels four pairs; nasal barbels minute rudimentary, maxillary barbels with stiff basal portions, slightly shorter than head; mandibular barbels considerably shorter, their bases close together and in a transverse line behind lower jaw, two finger like processes often present between bases of inner mandibular barbels, represented by nodules attached to posterior lip. Dorsal fin higher than the body, its first two rays being the longest, spine moderately strong, finely serrated along anterior edge. Base of the adipose dorsal as long as the base of the rayed dorsal. Lateral line complete, may be with pores in anterior half. Caudal fin forked.

General information : This species reportedly grows to about 15 cm. Found in the freshwater zone of the Hooghly estuary. Though used by some people as food fish the species is of no interest to the fisheries of Hooghly estuary.



***Heteropneustes fossilis* (Bloch)**

Common name in Bengali : Singhi or Singi

Colour in life /fresh condition : Light blackish or leaden, sometimes with very faint reddish tint. Colour of belly lighter than the back. Some times with two yellow longitudinal lateral bands.

Some identifying characters : Elongated body, sub-cylindrical anteriorly. A little laterally compressed posteriorly. Dorsal profile almost straight, slightly curved anteriorly. Head depressed, spatulate snout. Length of head 5.5-7 in total length. Mouth small terminal. Barbels 4 pairs-maxillary pairs extending to middle of pectoral to even pelvic base. Dorsal small situated nearer to snout than caudal base, without spine. Pectoral spine strong serrated. Anal long with 60-79 rays. Caudal rounded. Long tube like air sacs, originating from dorsal side of the gill chamber serves as accessory respiratory organ.

General information : Singhi is an air-breathing cat fish of good market demand. It is a freshwater fish and is available in good numbers in wetlands, more or less shallow water bodies etc., all over India. In the upper most freshwater zone of the Hooghly estuary encountered occasionally in set-barrier landing. The fish is believed to be of great nutritional value and used as a component of diet for ailing persons and children. Attains about 30 cm or so in length.



***Arius jella* (Day)**

Common name in Bengali : Medh Kanta

Colour in life : Colour blackish/greyish silvery on the back becoming white on the sides and

below. In juveniles the fins are faintly orangish with a little blackish tint in the margin. In larger specimens the colour becomes ash on both back and abdomen with reddish shade on the fins.

Some identifying characters : Body elongated, scale less, head depressed, mouth sub-terminal. Teeth in jaws villiform. Three pairs of barbels. Maxillary barbels almost as long as head, the outer and inner mandibular barbels short. Most of the occipital region granulated. Pectoral spine longer than dorsal spine. First dorsal spine strong and sharp (moderately strong in younger specimens) with a granulated base. Dorsal spine as long as head, slightly serrated at the anterior end, strongly serrated posteriorly. Adipose fin widely separated from rayed dorsal and usually with a dark blotch. Pectoral spine strong and sharp longer than the dorsal spine. Anal with 14-16 fin rays. Upper caudal lobe longer.

General information : *A. jella* is fairly common in the trawl catches at the mouth of the Hooghly estuary. Young ones are generally caught with long lines/hooks. The species is considered as a good food fish and the smaller ones are liked by the people of the lower Hooghly region. The photographed specimen was from Diamond Harbour, caught by Hook.



***Plotosus canius* Hamilton - Buchanan**

Common name in Bengali : Kan magur

Colour in life : Greenish black over head and body. Abdomen yellowish. Margin of fins black.

Some identifying characters : Elongated body, slightly rounded anteriorly, slightly laterally compressed posteriorly. Head depressed, eyes small. Barbels four pairs. Two

rayed dorsal fins- 1st dorsal with one spine and four soft rays. Dorsal spine serrated on both the edges. The 2nd with many (69-115) rays and confluent with the caudal and anal. Pectoral with one spine and 11-15 soft rays. A dendritic post-anal structure present.

General information : The species is found in the lower most high saline zone of the Hooghly estuary. The species is a minor contributor to the fishery. It is more frequently found in the Sundarbans estuarine complex- both in rivers and estuarine wetlands. A low priced fish. Reportedly attains a length of about 150 cm but commonly of 30- 45 cm in landing.



***Batrichthys grunniens* (Linnaeus)**

Common name in Bengali : Gangene

Colour in life : Brownish-reddish black, marbled darker. Black, rather greyish bands on the rayed dorsal.

Some identifying characters : Body anteriorly somewhat cylindrical; posteriorly compressed laterally; the fish has a broad toad like head and very large mouth provided with sharp conical teeth in both jaws and palate. Operculum with 4 backwardly directed spines, two on the opercle and two on sub-opercle. The first spinous dorsal fin small, with 3 solid spines, the second longest. Second dorsal long based with 20 soft rays. Pelvic fins are located much forward under the chin and in front of the fan like pectoral fin.

General information : The species is a marine one only very occasionally enters Hooghly estuary and therefore, may be considered as a rare one. The photographed specimen was collected at Diamond Harbour which is a very highly unlikely habitat for this species since

the salinity of the Hooghly estuary in this zone has come down and there exists almost a freshwater condition. This interesting fish species, however, has no commercial importance and is not a food fish.



***Hyporhamphus limbatus* (Valenciennes)**

Common name in Bengali : Derh thunto

Colour in life : Dorsal part of the body greenish. Abdomen silvery. A brilliant silvery lateral stripe on sides of the body. Fins hyaline; margins of dorsal and caudal blackish. Fleshy tip of the beak reddish.

Some identifying characters : Body elongate, sub-cylindrical anteriorly, compressed a little posteriorly. Lower jaw produced in to a beak like structure - a little longer than the head length. Upper jaw short, triangular, a little convex and with scales. Dorsal fin with 12-16 rays situated towards the posterior extremity very near to caudal. Anal fin with 13-16 soft rays situated opposite to dorsal. The pelvic fin is located at almost the mid-point of the abdomen. Caudal emarginate, slightly forked, lower lobe a little longer than the upper.

General information : *H. limbatus* is a coastal species inhabiting mostly in the inshore area and entering the Hooghly estuary, going up to the transitional zone. Though reportedly even enter the freshwater zone with in the tidal range no specimen could be encountered in the recent survey. This species of half-beak is not considered as a commercial species.



***Xenentodon cancilla* (Hamilton-Buchanan)**

Common name in Bengali : Kanklesh, Kankley, Kankol, Gangdhara

Colour in life : Greenish gray above, sides greenish silvery becoming whitish along abdomen. A silvery lateral band which extends along the sides of the body to almost the middle of the base of caudal fin. The whole upper $\frac{2}{3}$ rd of the body marked with closely set fine black spots. A series of 4-5 blotches along the side between pectoral and anal. Such spots are absent in young. Eyes golden.

Some identifying characters : Body elongated, almost cylindrical and slightly compressed. Abdomen rounded with compressed free portion of tail. Head with sharply pointed snout. A deep longitudinal groove runs along the upper surface of the head. Both jaws prolonged in to a beak. Lower jaw is slightly longer. Gill rakers absent. Dorsal fin with 15 to 18 rays, inserted opposite to anal (with 16-18 rays) almost at the base of the caudal peduncle. Upper margin slightly concave and without spine. The last few anal and dorsal rays are not elongated and do not extend to root of caudal. Caudal fin truncate or slightly emarginate. Pelvic origin nearer to caudal base than to hind border of eye. Lateral line placed very low on the body not forming keel on the caudal peduncle.

General information : The species is fairly well distributed in the Hooghly estuary from freshwater to transitional zone (Nabadwip to Diamond Harbour). Found in the upper stretches of river Ganga and also in Brahmaputra. The fish is relished by the people.



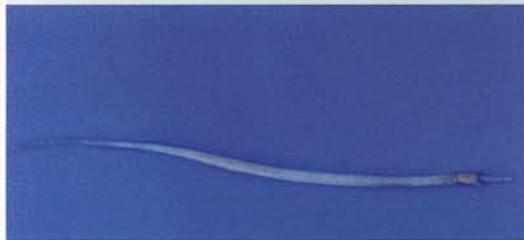
***Aplocheilichthys panchax* (Hamilton - Buchanan)**

Common name in Bengali : Techokha

Colour in life/freshly caught specimens : The upper side of the body greenish. Flanks silvery white with a bluish tint. Belly white. Lower third of dorsal fin with a black band, sometimes with a black blotch at the base. Anal fin orange at the base, reddish with spots in the margin.

Some identifying characters : Head broad and flattened above ; Terminal, upturned mouth. Eyes large; a distinct white occipital spot from which the common Bengali name has been derived ("Techokha" means three-eyed). Body elongated, compressed posteriorly. Dorsal fin inserted quite posteriorly. Caudal fin rounded. Anal-fin squarish.

General information : The species is rarely found either in the set-barrier (Pata-jal) or in the bag-net (Beenjal) in the Monirampore - Nababgunj-Bichalighat stretch in the freshwater zone of the Hooghly estuary. The fish is known for its larvivorous propensity and has been in use in biological control of mosquito-larvae. The fish is of little or no interest from the fishery point of view .



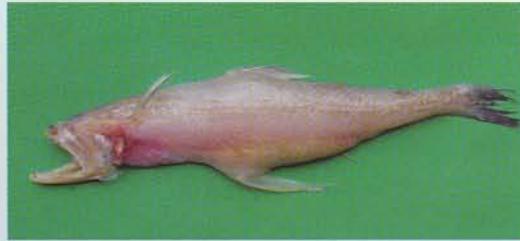
***Microphis cuncalus* (Hamilton - Buchanan)**

Common name in Bengali : No specific local name known.

Colour in life : Greenish above, whitish below; light blackish lines on the dorsal side intersect each other to form a network. Caudal reddish. Opercle silvery.

Some identifying characters : Body narrow, elongate and encased in a series of bony rings. A long and tubular snout. Eyes situated in the middle of head. Length of head 4.5 in distance between snout and vent. Single dorsal fin with minute fin rays on 11 rings, two rings anterior to anal ring. Caudal fin rays 9. Brood pouch on trunk. Gills tufted and lobe like.

General information : The species grows to about 17.5 cm in length. Inhabits estuaries and freshwater rivers. The fish is found in good numbers in the Bichalighat - Barrackpore stretch in the freshwater zone of the Hooghly estuary. Reportedly ascends far above tidal zone. Is of no fishery interest.



***Harpadon nehereus* (Hamilton-Buchanan)**

Common name in Bengali : Latya, Lote, Bhomla and Neheri.

Colour in life : Body translucent when alive, uniform light grey, speckled with black. Fins dusky.

Some identifying characters : Body elongate, somewhat compressed and soft, naked except lateral line and a part of posterior portion. Head compressed. Eyes very small, anteriorly placed and directed forward. Snout very short. Mouth very wide, provided with recurved and depressible teeth of unequal size; Palatine teeth also large. Lower jaw longer than upper. Dorsal fin with 12 to 14 rays, followed by a small adipose fin. Anal fin with 14 or 15 rays. Long pectoral fins reaching beyond level of pelvic fin origin. Pelvic fins very long, extending beyond anal fin origin with 9 fin rays. Caudal fin trilobed. Lateral line straight, extends a little as a median lobe of the caudal.

General information : The species inhabits coastal water and estuaries. The Bombay duck contributes a substantial fishery in the Hooghly estuary. This fish is caught mainly by bag net and small meshed gill net.



***Saurida tumbil* (Bloch)**

Common name in Bengali : Bheto bele

Colour in life : Brownish grey along the back, with faint cross bars ; belly off-white. In some

upper half of dorsal and caudal fin with spots. Inner side of the pelvic fins dusky black.

Some identifying characters : Body elongated and rather cylindrical. Lizard like head; mouth large; teeth in jaws; outer palatine tooth bands present. 1st dorsal at the centre of the back with 11 to 13 rays; the adipose dorsal very small and situated long back over the last two anal rays. Scales over head and operculum. Caudal fin deeply forked.

General information : This species has no special fishery importance. It reaches a maximum length of about 45 cm. Not very much esteemed as food fish. Found in the lower most part of Hooghly estuary - Sagar and Freserganj. Infrequently encountered in winter bag net fishery. The specimen figured here was collected from near Sagar Island.



Bregmaceros mccllellandi Thompson

Common name in Bengali : Luti

Colour in life : Brownish on the back and upper side of the body. Silvery white on the lower sides and belly. Scattered minute blackish brown dots on the body. Distal parts of dorsal, pectoral, and caudal fins black.

Some identifying characters : Body moderately elongated, slightly cylindrical at the anterior end and slightly compressed posteriorly. Head small, a little compressed; No opercular spine. Two dorsal fins-1st dorsal fin with a single long delicate ray situated anteriorly in the occipital region reaching almost the base (or even slightly beyond that) of the first part of 2nd dorsal; 2nd dorsal fin long, extends from about first $\frac{1}{3}$ rd of the body to almost the base of caudal, with a median notch; anterior part of the 2nd dorsal fin is higher than the posterior portion following the notch; the median notch with shorter rays; anal fin long with a large notch in the middle, situated opposite to the second

dorsal; Pectoral fin located just behind the operculum with 24 rays, pelvic fin consists of six rays of which three outer rays long, separate filaments extend backwards almost the half of the body. Scales cycloid; Lateral line complete, indistinct in some specimens.

General information : The species is reported to grow about 13 cm in length. It is fairly common in the Sundarbans mangrove area. Found in the lower most part of Hooghly estuary at Fresergung-Bokkhali and Sagar island. Mostly caught during winter and early summer months. It is a food fish and consumed by the people of coastal areas. Its contribution to the fishery of Hooghly estuary is insignificant.



Lates calcarifer (Bloch)

Common name in Bengali : Bhetki

Colour in life/ freshly caught specimens : Gray or blackish-green on the back. Abdomen silvery. Eyes bright, pinkish-blue or pink, glowing at night. Dorsal and caudal margin dusky, sometimes reddish.

Some identifying characters : Elongated body, moderately compressed and thick, snout sloping, curved; slightly oblique; large mouth with lower-jaw slightly projecting beyond the upper jaw; posteriorly the upper jaw extending beyond the eye. Villiform teeth on jaws; pre-orbital and pre-opercle finely serrated; pre-opercle is provided with a backwardly directed large tooth-like spine and 3 smaller, strong and sharp denticles along the lower margin. Pectoral fin-ray may vary from 15-17; anal fin generally with three spinous and 7-8 soft rays. First dorsal with 7-9 spines of which the first one is rudimentary; Two dorsals are

united at their base ; 2nd dorsal with 10-11 soft rays ; Lateral line complete, lateral line scales may vary in number from 22 to 27. Caudal rounded; pectoral, anal and 2nd dorsal margin somewhat oval ; large ctenoid scales; GI tract with large stomach and with 5-6 pyloric caeca; RLG below 1.

General information : This highly carnivorous and predaceous fish is basically a marine one and is a highly priced species and relished as a food fish. Caught in large number in the lower part of the Hooghly and Matlah estuarine systems. The species is also found in the freshwater region of the Hooghly estuary. The fish is one of the most important component in the coastal wet-land fishery in West Bengal. Easily gets adapted to freshwater. The photographed specimen was collected from Nababgunj.



Chanda nama Hamilton-Buchanan

Common name in Bengali : Chanda

Colour in life/ freshly caught specimens : Translucent ; silvery-yellowish; a distinct golden spot at the end of the head and above operculum; a blackish oblong patch on the shoulder; body covered with scattered, minute black dots ; Fins with tint of orange, upper half of the dorsal blackish.

Some identifying characters : Strongly compressed body with dorsal and abdominal profile almost equally convex. A considerably sharp rise from the occiput to the base of the first dorsal. Upwardly directed large mouth with lower jaw much longer than the upper. Lateral line with 100-107 scales. 1st dorsal with 7 strong fin-rays; a recumbent spine anterior to the first dorsal. 2nd dorsal with 13-17 fin-rays; two dorsals are united at the base. Deeply bifurcated caudal fin.

General information : This small perch constitutes a minor fishery in the freshwater zone of the Hooghly estuary and caught generally by bag-net, set-barriers, small-meshed lift nets and cast nets. The species is carnivorous in nature. Though a low priced fish it is relished by many of the Bengalis.



Pseudambassis ranga (Hamilton-Buchanan)

Common name in Bengali : Chanda

Colour in life/ freshly caught specimens : Translucent ; whitish with greenish-yellow tinge ; a silvery band on both the flanks. A blackish spot on the shoulder ; Margins of the dorsal fin are generally with blackish edge; younger specimens with 3-4 vertical bands.

Some identifying Characters : Strongly compressed body ; dorsal and abdominal profile very convex(abdomen almost rounded); Profile over the eyes is indistinctly convex; Pre-opercular hind edge almost smooth with 1-2 serrations ; Mouth oblique, wide and protractile; Maxilla reaches almost upto the middle of the orbit. 1st dorsal with 7 strong fin-rays ; 2nd dorsal with 11-15 fin-rays; two dorsals are united at the base. Deeply bifurcated caudal fin. Scales small cycloid. Lateral line complete with 47-63 scales.

General information : This small perch also constitutes a minor fishery in the freshwater zone of the Hooghly estuary and caught generally by bag-net, set-barriers, small-meshed lift nets and cast nets. The species is also carnivorous in nature. Though a low priced fish it is relished by many of the Bengalis.



***Pseudambassis lala* (Hamilton-Buchanan)**

Common name in Bengali : Lal chanda

Colour in life : Body translucent brilliantly orange in colour. Longitudinal faint bands (of minute black dots) extending dorsoventrally may some times be present. Operculum with dark stripes. Dorsal, anal and caudal fins deep orangish or reddish orange with blackish margins.

Some identifying characters : Body small rounded, strongly compressed with dorsal and abdominal profile almost equally convex. Supra-orbital ridge dentate. Upwardly directed large oblique mouth with lower jaw much longer than the upper. A considerably sharp rise from the occiput to the base of the first dorsal. Second spine of dorsal fin very elongate. Scales minute; Lateral line complete with about 90 scales; Cheek with 7 transverse scales.

General information : The species is found in the freshwater zone of the Hooghly estuary. Highly priced aquarium fish. Sometimes taken as food along with other species of chanda and other small fishes caught in set-barriers or other gears. The specimen figured here was collected from set-barrier at Monirampore, Barrackpore.



***Secutor ruconius* (Hamilton-Buchanan)**

Common name in Bengali : Taka

Colour in life : Black bluish on the back. More silvery along the sides and the abdomen

with pink and blue iridescence. Upper half of the body is traversed by transverse small black bars. A dark line from angle of mouth to chin.

Some identifying characters : Oval body, deep, laterally compressed. Mouth small, upwardly directed, strongly protrusible which form a tube when fully extended. Maxilla tip reaching to about the lower margin of eye. Dorsal fin has 7 spines and 16 soft rays. Caudal deeply forked. Lateral line ending below middle of the soft part of dorsal. Luminous organs round the oesophagus.

General information : These are small fishes chiefly in marine habitat. Sometimes enter in the lower most high saline portion of the Hooghly estuary. They appear in the catches in good number during winter months. Reportedly grow to about 12 cm. Not a preferred food fish.



***Gerres oyena* (Forsskal)**

Common name in Bengali : Tak chanda

Colour in life : Silvery, some times with a golden yellow tint. Dorsal fin edge black. A dark spot on at about the middle of each spine and ray. Edge of the caudal blackish.

Some identifying characters : Body laterally compressed. Dorsal profile convex. Head length 4- 4.5 in total length. Eyes large. Pre-opercle rough but not serrated ; scales on operculum. Highly protrusible mouth when fully protruded bends downwards. Dorsal spine strong, 2nd longest almost equals the length of head without snout. 2nd anal spine strongest but shorter than the 3rd. Pectoral fin long extending beyond the anal fin origin. Lateral line complete almost parallel to the curvature of the dorsal profile.

General information : The species is common in the lower most part of Hooghly estuary. Generally caught by bottom trawls. The fish attains a length of 10 to 15 cm. The species has little commercial value.



***Gerres filamentosus* (Cuvier)**

Common name in Bengali : Tak chanda

Colour in life : Silvery; rows of horizontal bluish spots along the upper half of the body. Snout black, pectoral, pelvic and anal fins with yellowish shade, caudal greyish.

Some identifying character : Body laterally compressed. Dorsal profile convex. Head length 4- 4.5 in total length. Eyes large. Preopercle entire; scales on operculum. Highly protrusible mouth. The spinous dorsal fin is high in front gradually sloping down into the soft rayed 2nd dorsal. The 2nd ray of the first spinous dorsal is greatly elongated, larger than head. Caudal deeply forked, Anal spines of almost equal length, the 2nd one slightly longer. Lateral line complete almost parallel to the curvature of the dorsal profile.

General information : The species is common in the lower most part of Hooghly estuary. Generally caught by bottom trawls. The fish attains a length of 10 to 15 cm.



***Pomadasys maculatus* (Bloch)**

Common name in Bengali : Not known

Colour in life : Silvery greenish with a purplish tinge. Nape and back with a series of 5-6 incomplete blackish-brown cross bars

(sometimes in the form of blotches) from hinder part of operculum; the one on the nape is most prominent about 8 scale wide and terminating about 3 scales below the lateral line. Spinous dorsal with a large black blotch. Margin of dorsal and caudal blackish.

Some identifying characters : Moderate sized perch with a snapper like appearance. Body rather oblong, compressed. Head 3.5 in total length. Jaws almost of equal length. Scales present on head. Teeth in jaws villiform. A median groove below the symphysis of the lower jaw. Two small pores on the chin. Preopercle serrated. Mouth rather small, gape of mouth not very wide. No barbel. Dorsal fin with spinous portion comprising 11 spines, the 4th one being longest. Pectoral length equals head length. Second anal spine longest and strongest. Caudal emarginated. Scales ctenoid, small.

General information : Reportedly grow to around 45 cm in length. Normally encountered in much smaller size. These fishes inhabits coastal waters at a depth of about 40 m. Caught by bottom trawls and shore seines. Enters the high saline zone of the Hooghly estuary only occasionally.



***Acanthopagrus latus* (Houttuyn)**

Common name in Bengali : Khorobhetki /Khuranti

Colour in life /freshly caught : Silvery /little greyish with golden longitudinal streaks on the dorsal half of the body along the scale rows and almost parallel to the dorsal profile becoming almost straight and fading towards the ventral side. Young ones with vertical cross bars. Anal and pelvic fins yellow. Caudal with a blackish edge. Often a dark spot at the

origin of the lateral line, a faint one at the base of the pectoral and at the posterior margin of the operculum.

Some identifying characters : Body thick, laterally compressed, convex above. Snout without scale. Four--six peg like strong incisors on the jaws. Pre-orbital margin not serrated. The eyes are placed high on the head. Dorsal fin continuous with 11 -12 spines and 10-12 soft rays. Of the three anal spines 2nd one is the longest and largest. Caudal rather truncate. Lateral line highest under 3-5 dorsal spine.

General information : Sea-breams are demersal carnivorous fishes living in shallow waters with sandy or muddy bottom. The species sometimes enters the high saline zone of the Hooghly estuary, is more or less common. The fish is reported to attain a maximum length of 15 cm. The species is of no significance to the fishery of the Hooghly estuary.



***Lutjanus johnei* (Bloch)**

Common name in Bengali : Pankhai

Colour in life : Silvery yellowish with a large rounded or oval blackish mark (with varying depth of colour) on lateral line below the end of spinous dorsal. In the young ones the blotch is surrounded by a light whitish ring (a character by which the species can be differentiated from all other species of the Genus). Back a little greenish. Fins yellowish dashed with red.

Some identifying characters : Body fairly deep, moderately compressed. Head profile almost straight. Length of head 3.25-3.50 in total length. Snout rather a little elongated. Mouth large provided with an outer row of sharp canine teeth, longer on the upper jaw smaller on lower. Villiform teeth on vomer and palate. Pre-opercle serrated. Eyes large, set high on the head. The anterior spinous dorsal comprises 10 spines, increasing in

length from 1st to 4th and thereafter decreasing. The spinous dorsal is confluent with the 2nd soft dorsal with 13-14 rays. The pectoral fin is pointed. Anal is provided with 3 spines. Caudal slightly emarginate. All rows of scales above lateral line are parallel to the profile of back.

General Information : This species of the snappers is found in the lower most part of the Hooghly estuary. Reportedly grow to about 38 cm but commonly found in the size of 12 to 20 cm. Though taken as food by the people of the lower Hooghly estuarine area, is of minor interest to fisheries.



***Lobotes surinamensis* (Bloch)**

Common name in Bengali : Talchuti / Kalo bhetki /Choto bhetki

Colour in life : Dark brown or dark brown with greenish tint; Light silvery gray below; some dark spots on the body which may be pale in some cases. Edges of pectoral fin pale yellow. Sometime the caudal fin is also fringed with light yellow colour.

Some identifying characters : Body compressed; up turned, protrusible mouth with large oblique lower jaw 1st dorsal with 12 strong spines; soft dorsal with 15-16 rays; Anal fin with 3 spinous and 11-13 soft rays. The soft dorsal, anal and caudal fins are large with rounded margin giving the impression of 3 tails. Scales weakly ctenoid.

General information : The fish may attain 75 cm in length; is regarded as a tasty fish in the coastal areas of West Bengal. The species is available in both Bokkhali and Jharkhali Mangrove regions and lower most high saline zone of the Hooghly estuary. The photographed specimen was collected from Fresergunj.



***Upeneus sulphureus* Cuvier**

Common name in Bengali : Not known

Colour in life : Upper side of head and back greenish bronze; flank and belly silvery white. No cross bars on caudal fin. Two narrow, almost parallel longitudinal yellow stripes extending from back of operculum to base of the caudal fin. Anterior dorsal part of head with reddish tinge. Tip of spinous dorsal with black margin and two olive green/yellowish black bars/dots.

Some identifying characters : Body rather elongate, mouth small; chin with two slender barbels. Two dorsal fins. First dorsal with 8 spines. Second dorsal with 1 spine and 8 soft rays. Scales large, ctenoid. Caudal forked.

General information : The goat fishes are rare, only some times caught in the high saline zone of Hooghly estuary with shore seines or bottom trawls.



***Scatophargus argus* (Linnaeus)**

Common name in Bengali : Pairachanda or Pairatoli

Colour in life : Body bluish or greenish - gray to dusky brown above, with numerous irregular large round brown spots which may extend on to soft dorsal fin. Belly silvery. Fins pink, yellowish to brown-grey.

Some identifying characters : Body quadrangular, strongly compressed and squarish in outline, with bluntly pointed and triangular head; rostro-dorsal profile strongly ascending and followed by a deep concavity above the eyes. Mouth very small, not protrusible; Dorsal fin notched, with 11 strong spines and 16 to 18 soft rays. Anal fin with 6 strong spines and 14 or 15 soft rays. Scales small.

General information : The species is considered delicious by Bengalis. This is a priced fish. Because of its attractive colour juveniles of the species are used as aquarium fishes. The fish is found in the lower most part of the Hooghly estuary though earlier recorded from the upper reaches (with very low salinity) of the Hooghly estuary. The fish attains 30-35cm (maximum) in length. This species contributes a minor fishery in the lower part of the Hooghly estuary.



***Therapon jarbua* (Forsskal)**

Common name in Bengali : Kath Koi

Colour in life : Bluish-grey on the dorsal side, gradually becoming white on the abdomen. Three brownish, downwardly curved almost parallel longitudinal bands along the flank. Sometimes there is a 4th band along the abdomen. Caudal with oblique bands. Eyes yellowish with a tint of red.

Some identifying characters : Body moderately ovate, laterally compressed. Length of head 4 in total length. Snout a little pointed. Mouth oblique. Conical strong teeth. Pre-orbital serrated along the last half of its ventral margin. Two opercular spines-upper one small, lower one larger and stronger. Dorsal fin single with a small notch between spinous and soft rayed part. The spines in the anterior part of dorsal fin are 10-12 in

number, moderately strong, the 3rd and the 4th largest. Spinous dorsal slopes down to the soft dorsal (with 9-10 rays). Anal fin with 3 strong spines of which 2nd one usually strongest but slightly shorter than the 3rd. Scales finely ctenoid. Lateral line complete.

General information : The species is found in the coastal waters and enters the high saline zone of the Hooghly estuary. *Therapon jarbua* is reportedly attain a maximum length of around 30-32 cm but commonly found in the length range of 15-25 cm. It is esteemed as food but do not contribute substantially in the fishery of the Hooghly estuary.



***Kurtus indicus* (Bloch)**

Common name in Bengali : At Bakkhali - Fresergunj area known as "Plastic chanda" or nona chanda.

Colour in life/ freshly caught specimens : Body translucent, silvery; Fine black dots on the back and in the form of a round black spot behind the occiput.

Some identifying characters : Strongly compressed body with elevated back. Operculum thin and paper like (Papirous in nature). Large and protractile mouth with villiform teeth on jaws, vomer and palatines. 4 pre-opercular spines at angles. Dorsal spine rudimentary directed anteriorly. Males with a prominent hook on the occiput covering supra-occipital crest. Soft dorsal fin-rays 12-13 and anal fin with two spines and 31-32 fin-rays. Lateral line extends only up to soft dorsal fin.

General information : This small fish is of little importance to fisheries of the Hooghly estuary. Some quantity of the species is caught during winter months in the lower most part of the estuary i.e., in the high saline zone. Generally found between 4.5 and 8.5 cm.



***Drepane punctata* (Linnaeus)**

Common name in Bengali : Not known

Colour in life : Sides of body silvery with greenish-golden tint. Vertical bands of black spots - 4 to 5 usually present. Edges of the fins grey.

Some identifying characters : Body almost circular, laterally compressed. Length of head 3.25-4 in total length. Head with steep profile from snout to base of spinous dorsal, just before the commencement of the dorsal fin slightly concave. Dorsal fin with 8 spines, the 4th one being longest. The anterior spinous dorsal slopes down posteriorly in the soft rayed dorsal (with 21-22 rays). Pectoral sometimes reach upto the base of caudal. Three anal spines, the 2nd one strongest and largest. Lateral line complete, curved, almost parallel to the dorsal profile.

General information : The species basically is a shallow water coastal one but enters the high saline zone of the Hooghly estuary. It is fairly common and reportedly grows to a length of around 38 cm. The species is esteemed as food but does not contribute significantly in the fishery of the estuary.



***Nandus nandus* (Hamilton-Buchanan)**

Common name in Bengali : Nados, Bhada

Colour in life : Greenish-brown on the back and sides of the body. Three vertical broad

patchy bands. A fourth one on the base of the caudal. Some narrow bands radiate from the eye. Soft fins greenish with very narrow brownish/yellowish bands.

Some identifying characters : Mouth terminal, upwardly directed, pre-maxillaries very protractile, reaching behind the posterior border of the eye. Jaws unequal-- lower jaw extends beyond the upper. Villiform teeth on jaws and tongue. Operculum large, with one spine. Sub-opercle serrated or more or less entire. Eyes large. First dorsal with rather strong spines, 12-14 in number. Anal fin with three strong spines of which the 2nd one is the largest. Margin of all soft fins including the caudal fin are rounded. Scales ctenoid. Lateral line interrupted at about 36th scale.

General information : The fish is esteemed as a food fish in West Bengal. Because of lesser availability in recent years it has become a high priced fish. The species grows to around 17.5 cm in length. The species is highly carnivorous and subsists on small fishes and crustaceans. Though the fish is captured in good numbers during summer months from impounded water bodies (Dried up wetlands, ponds etc.), in the upper part of the Hooghly estuary, it is rarely caught.



***Liza parsia* (Hamilton-Buchanan)**

Common name in Bengali : Parse

Colour in life/ freshly caught specimens : Body silvery with a grayish tint, greenish-brown on the back, belly silvery. A light golden spot on the upper portion of the operculum. Edge of the dorsal fin blackish. More distinct in the 2nd dorsal. Base of the caudal faintly yellowish and with a dark edge.

Some identifying characters : Head moderately wide. Upper surface of head slightly convex, snout depressed. Upper-lip thin ; lower lip with a symphysal knob. Teeth in upper jaw. Well developed posterior adipose eye-lid. Two dorsal fins widely separated by inter space. 1st dorsal inserted nearer to the snout than caudal base. First dorsal with 4 soft spinous rays of which the 1st and 2nd one about equal length of head behind posterior third of orbit. Anal fin with 3 soft spinous and 9 soft rays. Caudal fin slightly forked. Scales finely ctenoid in adults but cycloid in juveniles.

General information : Parse is a choiced mullet species landed mainly in the saline zones of the Hooghly estuary including Sundarbans mangrove areas. The species is an euryhaline one and can be adapted to freshwater easily. It is one of the main component in brackish water aquaculture including estuarine wetland (Bhery) fisheries. The alimentary canal is provided with a top shaped gizzard. The mean RLG has been found to be 2.2. Though the species was available in the Nababgunj-Barrackpore stretch earlier is not available now in the freshwater zone of the estuary.



***Liza tade* Forsskal**

Common name in Bengali : Bhangon

Colour in life/ freshly caught specimens : Greenish with a brown tint above, silvery on the flanks and belly. Dark line along each row of scales.

Some identifying characters : Head depressed with distinctive bulge at sides. Head length 19-25% of standard length. Adipose eye-lid - wide posterior and narrow

anterior one ; Lower lip with a high symphysal knob. Minute teeth in 5 - 9 rows in upper jaw. Inter-orbital space flat. Two widely separated dorsal fins ; 1st dorsal with 4 spinous rays inserted nearer to the tip of snout; 2nd dorsal with one spinous ray and 8 soft rays. Anal with 3 spines and 9 soft rays. Pectoral fin very short not reaching the origin of the 1st dorsal. Caudal marginally forked (not deeply forked like rohu/other carps or hilsa for example). No elongated axillary scale.

General information : The species grows to about 45 cm in length and is relished as a food fish. It contributes a minor fishery in the lower most part of the Hooghly estuary particularly during post monsoon months. This mullet species constitute one of the important components of the estuarine wetland fisheries (saline bhery fisheries).



***Liza macrolepis* (Smith)**

Common name in Bengali : Parse/ Gueti Parse

Colour in life/ freshly caught specimens : Back gray with greenish tint. Silvery on sides and belly ; fins dusky along margins.

Some identifying characters : A moderately robust body with a wide head, flattened above. Maxilla slightly bent ; upper-lip moderately thick, teeth distinct in upper jaw. Adipose eye-lid absent ; Two widely separated dorsal fins, 1st dorsal with 4 spinous rays inserted almost at the mid point of the back nearer to snout than caudal base ; 2nd dorsal with one spinous ray and 8 soft rays. Anal with 3 spines and 9 soft rays. Caudal fin slightly forked. Scales on body cycloid in juveniles, finely ctenoid in adults.

General information : The species is available only in the lower most part of the Hooghly estuary. The fish is found in the Fresergunj area almost throughout the year and caught mainly during winter months. Though the fish is reported to be available in the freshwaters, in Hooghly estuary it is not

encountered even in the transitional zone (around Diamond Harbour). It forms a minor fishery in the high saline zone of the estuary and is generally sold in the name of parse.



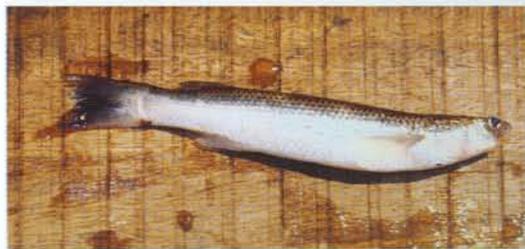
***Mugil cephalus* Linnaeus**

Common name in Bengali : Bhangon/ Kalagachi bhangon /Bhangon parse

Colour in life/ freshly caught specimens : Greenish with a brown tint above, grayish-silvery on the flanks and belly. Dark line along each row of scales in upper half of body. Pectoral fin with an oblique deep blue stripe across the base or a dark purple blotch.

Some identifying characters : Head broad and flattened dorsally, its length 27--- 29 % of standard length. Broad adipose eye-lid - both posterior and anterior one and both reaching the pupil. Inter-orbital space flat. Lower lip with a high symphysal knob. Minute teeth --1 to 6 rows in upper and 1 to 4 rows in lower jaw. Dorsal profile from snout to the base of 1st dorsal (rather prior to 2nd dorsal) almost straight. Two widely separated dorsal fins ; 1st dorsal with 4 spinous rays inserted nearer to the tip of snout; 2nd dorsal with one spinous ray and 8 soft rays. Anal with 3 spines and 8 soft rays. Pectoral short, situated above the middle of the body, not reaching the origin of the 1st dorsal, with a long axillary scale. Scales finely ctenoid in adults but cycloid in juveniles. Caudal fin slightly forked.

General information : This species grows to larger size and though common in other estuaries is extremely rare in the Hooghly-Matlah estuarine system. Very rarely caught in the lower most part of Hooghly estuary. Its landing is mainly during post monsoon months. Though rare the species is found in high saline estuarine wetlands and also in the estuaries in Sundarbans mangrove area.



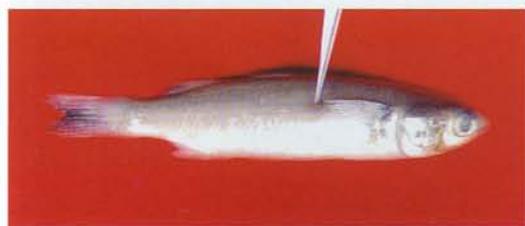
***Rhinomugil corsula* (Hamilton-Buchanan)**

Common name in Bengali : Kharsula, Khurshula, Tarui

Colour in life / freshly caught specimens : Pale brawn superiorly; lighter silvery along abdomen; dorsal fin and so also the caudal fin with grayish/golden tinge.

Some identifying characters : Head rather depressed, dorsal profile nearly straight; eyes elevated, without adipose eye-lid. Upper margin of eyes above the upper margin of the head; upper jaw longer, upper lip thick. Mouth ventral, protrusible ; Two dorsal fins widely separated by inter space. 1st dorsal inserted nearer to the caudal base than tip of snout. First dorsal with 4 soft spinous rays of which the 2nd one is the largest. Anal fin with 3 soft spinous and 9 soft rays. Caudal fin slightly emarginate. Scales finely ctenoid.

General information : The corsula swims with their eyes just above the surface of water. If disturbed they dive down with great speed. The species is an euryhaline one and is found in all the salinity zones of the Hooghly- Matlah estuary. It forms a minor fishery in the Freshwater zone of the estuary and is relished as a food fish.



***Valamugil cunnesius* (Valenciennes)**

Common name in Bengali : Ainse Parse /Parse

Colour in life : Blackish- gray with yellowish tint on back, grayish-silvery on the flanks

and belly. A dark axillary spot on the pectoral fin base. Tips of dorsal and caudal fins dark.

Some identifying characters : A moderately robust body with a wide head, flattened above. Adipose eye-lid very well developed, covering most of the iris. Upper-lip thin ; lower lip with a high symphysal knob. Pectoral fin long, equal to or slightly shorter than head length and extends usually upto 3rd or 4th spines of 1st dorsal. Two widely separated dorsal fins ; 1st dorsal with 4 spinous rays inserted almost at the mid point of the back ; 2nd dorsal with one spinous ray and 8 soft rays. Anal with 3 spines and 9 soft rays. Origin of anal is a little prior to the origin of 2nd dorsal. Caudal fin marginally forked.

General information : The fish forms only a minor fishery in the lower most part of the Hooghly-Matlah estuarine system in the months of September-December. This mullet species is found in the high saline estuarine wetlands of the Hooghly - Matlah system.



***Sicamugil cascasia* (Hamilton-Buchanan)**

Common name in Bengali : No special name; at places called Kucha parse/Chuno parse

Colour in life/ freshly caught specimens : Slightly greenish yellow on the back and upper sides of the body. Silvery white on the lower sides and belly. Scattered black dots on the body. A large yellow blotch at the caudal base. Yellow dot at the base of the pectoral.

Some identifying characters : Small mullet generally do not exceed 10 cm in length. Head wide, dorsally flattened. Adipose eye-lid absent. Pre-orbital with serrated lower margin with 3 denticulations at the posterior extremity. Opercle with a spine. Scales ctenoid,

lateral line absent. 1st dorsal inserted nearer to the tip of the snout. First dorsal with 4 soft spinous rays of which the 2nd one is the largest. Anal fin origin opposite to 2nd dorsal origin. Anal fin with 3 soft spinous and 8 - 9 soft rays. Caudal fin slightly forked/lunate (the end portion is rather a little concave).

General information : The species is a rare one and found occasionally in the freshwater zone of the Hooghly estuary. The specimen shown here was collected from a set barrier near Monirampore ghat (Barrackpore).



***Glossogobius giuris* (Hamilton - Buchanan)**

Common name in Bengali : Bele

Colour in life : Highly variable, may be yellowish -brown with five dark blotches on the flank, may be olive to dusky green above with irregular patches on the body ; appears to be translucent under water or when freshly caught. Side of head may be having some irregular violet spots.

Some identifying characters : Elongated body, anteriorly cylindrical and somewhat compressed posteriorly ; abdomen rounded. Head depressed, pointed, with large eyes placed superiorly in the middle of head. Inter-orbital space little concave. Scales on the head behind eyes. Mouth oblique, lower jaw extended. 3-5 longitudinal mucous canals over the cheeks. Villiform teeth on jaws. Two dorsal fins are separated by an inter-space. 1st dorsal with 6 weak spines of which second, third and fourth rays are long, 2nd dorsal with 8-9 rays. Caudal and pectoral fins rounded with black spots. Lateral line complete with 28 to 36 scales.

General information : The species is distributed from freshwater to moderate saline

zones in the Hooghly estuary. Caught in good numbers in the Bichalighat-Barrackpore stretch. Found in beels and freshwater to medium saline bheries in West Bengal. Highly carnivorous in nature and larger specimens are found to thrive on fishes and crustaceans. The RLG is around 0.7.

Erratum

The photograph of *Brachygobius nunus* has been presented erroneously in this document. The depicted photograph and the write up pertain to *Platycephalus* sp. (chancha bele) collected from the lowermost part of the freshwater zone of Hooghly estuary

Common name in Bengali : Chancha bele

Colour in life : Brownish /greyish with 6 to 7 black bands vertically round the body.

Some identifying characters : Body elongated, compressed; Head dorso-ventrally flattened; Snout blunt; eyes large, superior and towards the mid part of the head ; lower jaw little larger; two dorsal fins separated by an inter space, pectoral-fin not longer than head; caudal fin rounded; scales ctenoid.

General information : Though the species constitute a minor fishery in the freshwater zone of the Hooghly estuary it is not esteemed as bele *Glossogobius giuris*.



***Pseudapocryptes lanceolatus* (Bloch & Schneider)**

Common name in Bengali : Sada gule, gule

Colour in life/ freshly caught specimens : Ash colour with a little greenish tint on the back; lighter dull white on the sides and belly.

Fins with a yellowish tint and the 2nd dorsal is spotted. Prominent "<" shaped grey marks from behind the pectoral base to near about the caudal base.

Some identifying characters : Body elongated, slightly compressed ; Head small; Eyes small, high up in the anterior 3rd of the head. Mouth sub-terminal, upper jaw prominent; Teeth arranged in one row. Scales minute. Caudal lanceolate much pointed and longer than the head.

General information : The species though contributes to a minor fishery in the Hooghly estuary does not have any commercial importance and is a low priced one. This species which grows to about 20 cm in total length, is found from saline to freshwater zone of the estuary and is caught in good numbers in the pre-monsoon months.



Odontamblyopus rubicundus (Hamilton-Buchanan)

Common name in Bengali : Gule , Kalo gule

Colour in life : Greenish-black on the back and upper side of the body ; dull white on the sides with prominent "<" shaped marks from behind the pectoral base to near about the caudal base. Caudal black ; other fins sometimes with a reddish tint.

Some identifying characters : Body elongated, slightly compressed; Head 7.5 to 8 in total length. Eyes very small, high up in the anterior 3rd of the head. Mouth oblique; teeth prominent, in rows, both in upper and lower jaws; 4-5 canines on each side of upper and lower jaws. A pair of posterior canines above the symphysis of the lower jaw. Scales minute, rudimentary. Pectoral fin short, as

long as the head behind the eye (about 70 % of head length). Dorsal, caudal and anal fin continuous. The anal is connected to the caudal only by its base giving a notch like appearance. Caudal lanceolate.

General information : The species is found in the lower most part of the Hooghly estuary. It grows to about 25 cm total length. Though not of much commercial importance the fish fetches good price (sometimes around 100 rupees/ kg for the larger ones) and is relished by many Bengalis.



Eleotris fusca (Schneider)

Common name in Bengali : Kalo bele

Colour in life : Head, body and fins dark brown to black. Dark bands radiating from the orbit. Abdomen lighter than the other parts of the body. Caudal fin spotted.

Some identifying characters : Head depressed, mouth oblique, maxilla extends to below middle of the eye. Lower jaw longer with teeth in several rows; Eyes moderate. 1st dorsal spines weak, more than half as high as body. Caudal wedge shaped or rather rounded. 2nd dorsal and anal situated opposite to each other. Scales on head and opercle; scales cycloid upto the 1st dorsal, ctenoid thereafter.

General information : Is a low priced fish. This species is very common in Hooghly estuary from Naihati to Barrackpore. The species attains a length of 17 cm. Common people do not prefer this species. It is of no interest to fisheries. This species is mainly caught by set barrier.



***Eleutheronema tetradactylum* (Shaw)**

Common name in Bengali : Gurjauli.

Colour in life : Silvery greenish on the back, sides of abdomen yellowish white. A dark spot on the upper portion of the opercle. Dorsal and caudal yellowish, nearly black at the edge; ventral and anal pinkish / faintly orange.

Some identifying characters : Body compressed laterally, moderately deep. Snout some what rounded, recessed lower jaw; mouth moderately large, on the lower side of snout. Lower lip undeveloped except in the angle of mouth. Angle of pre-opercle rounded, its vertical margin serrated. The pectoral has two components- the lower part consisting of 4 free filamentous rays. Two dorsal widely separated. Caudal deeply forked.

General information : *Eleutheronema tetradactylum* is relished by Bengalis as food fish. Basically a coastal species, enters in to high saline portion of the Hooghly estuary. The fish is reported to grow even around 180 cm but specimens caught in the estuary usually are much lesser in length.



***Polynemus paradiseus* (Linnaeus)**

Common name in Bengali : Tapse or Topse

Colour in life : Golden with a little orange tint. Back with a little blackish or greyish shed. Fins faintly greyish.

Some identifying characters : Body laterally compressed. Head 6-6.5 in total length. Eyes minute in young, moderate in adults. Pre-opercle serrated. Mouth on the lower side of the snout. A small shoulder spine present. Seven free pectoral rays, the longest being twice the length of the fish. Caudal deeply forked.

General information : The species is very common in the high saline and transitional zone of Hooghly estuary. At one time the fish was very common in the upper zone of the estuary but now is found in stray catches only occasionally. The fish is reported to attain around 25 cm in length. It is a choiced food fish in West Bengal not only for less bones but also for its excellent taste. It is regarded as a luxury for the table and many people prefer to take fried Tapse.



***Sillaginopsis panijus* (Hamilton - Buchanan)**

Common name in Bengali : Tool bele

Colour in life/freshly caught : Back light greenish -brown , lower part of flanks and belly silvery/whitish, on the whole greenish yellow shot with purple . Dorsal and caudal dusky.

Some identifying characters : Body elongated, sub-cylindrical anteriorly, a little compressed posteriorly. Pyriform head. Length of head 3.75-4 in total length. Snout and head depressed. Mouth small and terminal. Upper jaw slightly longer. Two dorsal-1st with 10 moderately strong spines of which the 2nd dorsal spine greatly elongated, 2nd dorsal with one spine and 26-27 soft rays. Caudal slightly forked, upper lobe slightly longer than the lower.

General information : It is a near shore species, inhabits shallow sandy bottom. In the Hooghly estuary the species ascends to long distances and found even in Barrackpore-Bichalighat stretch. Reportedly attains a maximum length of 44 cm. It is one of the commercially important species in the landing of the Hooghly estuary. Caught particularly during winter months.



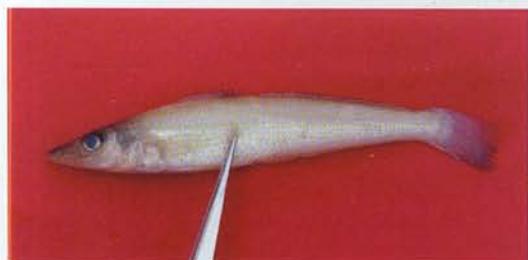
Colisa fasciatus (Schneider)

Common name in Bengali : Kholse, cheli

Colour in life/freshly caught : Greenish/greyish green with orange-blue oblique bars along the sides reaching from the back to belly extending backwardly. Margin of anal and caudal fin often reddish.

Some identifying characters : Strongly compressed, oval shaped body. Mouth small, a little protrusible. Opercle entire, pre-opercle serrated. Base of dorsal long with 15-17 spines and 9-14 soft rays. Anal fin also long based with 15-18 spinous and 14-19 soft rays. Caudal fin truncate. Pelvic fins thread like.

General information : The species is fairly common in the Hooghly estuary and is liked by the local people for its taste. It attains a length of about 12 cm. Because of brilliant colour and easy adaptability the species is commonly used as aquarium fish.



Sillago sihama (Forsskal)

Common name in Bengali : Tool bele

Colour in life/freshly caught : Back light greenish -brown , lower part of flanks and belly silvery/whitish, on the whole having a purple reflexion. Dorsal and caudal dusky.

Some identifying characters : Body elongated, length of head 4 - 4.25 in total length. Snout more or less pointed. Mouth small and terminal. Upper jaw slightly longer. Lower part of pre-opercle serrated. Opercle with a well developed spine. Two dorsal-1st with 10-11 moderately strong spines, 2nd dorsal with 20-23 soft rays. Caudal emarginate or obtuse. Scales small, cycloid. Lateral line with 67-72 scales.

General information : It is a near shore species inhabits shallow sandy bottom. In the Hooghly estuary the species ascends to long distances and found even in Barrackpore-Bichalighat stretch. Reportedly attains a maximum length of 25-30 cm. It is a commercial species but has only negligible contribution to the total landing from Hooghly estuary. Caught in good numbers during August-September.



Colisa lalius (Hamilton - Buchanan)

Common name in Bengali : Kholsh/Ranga Kholshy

Colour in life : Reddish-blue/Scarlet with bluish tint. 8-10 reddish vertical bands along sides. Dorsal and caudal fins barred with deep orangish dots. Anal rather orangish or reddish.

Some identifying characters : Length of head 3.33 to 3.5 in total length. Profile of head over eye very slightly concave. Pre-orbital denticulated; lower limb or pre-opercle serrated. Sub-opercle entire. A single dorsal fin with spinous portion consisting of 15-16 spines increase gradually in length from anterior to posterior part. The soft dorsal and posterior part of anal rather rounded. Ventral consists of a single elongated filiform ray. Caudal rounded/some times notched to a very little extent.

General information : The species is common in the freshwater zone of the Hooghly estuary. Is considered as a good fish for aquarium. Generally sold in the market - mixed up with other small fishes. Not commercially important as food fish.



Anabas testudineus (Bloch)

Common name in Bengali : Koi

Colour in life : Greenish black along the dorsal side becoming lighter along the sides and abdomen. Abdomen pale yellow. Dorsal and caudal fins gray. Pectoral and anal yellow, pelvic fins pale orange. The young have a black blotch on side of base of tail. The colouration is, however, highly variable.

Some identifying characters : Body elongate and moderately deep. Head moderate in size, Head length 3.5-3.75 in total length, compressed, snout slightly conical. Pre-orbital is strongly denticulated. Posterior edges of opercle, sub-opercle and inter-opercle are strongly spinous. Single dorsal fin, inserted above pectoral base with 17-18 spines. Anal with 9 to 10 spines. Origin of ventrals behind

the origin of pectorals. Caudal fin rounded. Scales ctenoid; scales on the head and base of fins. Lateral line interrupted at 17th or 18th scale. Accessory respiratory organ on either side of the supra-branchial region.

General information : *Anabas testudineus*, the climbing perch, has high market demand. The fish fetches high price. Koi is used as a component of diet for ailing persons. Though esteemed as food it's contribution in the Hooghly freshwater zone fishery is negligible. The fish is encountered only occasionally. Main supply of the fish comes from wetlands.



Pampus argenteus (Euphrasen)

Common name in Bengali : Commonly called Pomfret, Sada pomfret.

Colour in life : Upper surface of head and back greyish with bluish-purple tint merging to silvery white towards the belly. A dark blotch on the upper portion of the operculum. Very small black dots all over the body. The dorsal, anal and caudal fins are fringed with dark margin. All the fins are faintly yellow.

Some identifying characters : Body deep, more or less rounded or oval with maximum width between the origin of dorsal and anal fins. Head 4 - 4.5 in total length. Snout blunt, projecting beyond the mouth. A single row of narrow, small villiform teeth in both the jaws. Prominent eyes with feeble adipose eye lids. The dorsal and anal fins are preceded by 5 - 10 blade like minute spines. The anterior portion of dorsal and anal fins elevated. Long and rather pointed pectoral. Pelvic absent. Caudal deeply forked with longer lower lobe.

General information : The species is esteemed as a food fish in West Bengal. It may grow up to 30 cm in length. The fish is available in low quantity in the lower most part of the Hooghly estuary. It is encountered mainly in the landings of winter months.



***Parastromatous niger* (Bloch)**

Common name in Bengali : Commonly Called Pomfret, Kalo Pomfret

Colour in life : Body grey-brown, with a blue/grey tinge ; lower portion of head and body lighter; Dorsal and anal fin greyish brown, stained black towards their margins ; Pectoral and caudal brownish, edged with black. In the young grey. The dorsal and anal fins black and the tail yellow, with three brown cross bands.

Some identifying characters : Body oval or diamond -shaped, fairly deep and compressed. The lower jaw the longer. Dorsal and anal fins long, spines present only in young specimens, pectoral fins long, The dorsal and anal fins are not preceded by minute spines; pelvic fins absent in adults. Caudal fin forked. Scales of lateral line scute like on caudal peduncle.

General information : The species is esteemed as a food fish in West Bengal. The fish is available in the lower most part of the Hooghly Estuary, is encountered in the landings of drift net, bag net particularly in winter months.



***Carangoides malabaricus* (Bloch and Schneider)**

Common name in Bengali : Not known

Colour in life : Back bluish/ blue-green, sides silvery with pinkish or silvery tint. Upper edge of opercle may be black or brownish, outer margin of dorsal usually blackish, other fins light yellow, caudal more yellowish.

Some identifying characters : Body elongatedly oval, both abdomen and back convex. Strongly compressed laterally. Length of head 4 or nearly 4 in total length. Lower jaw slightly longer than upper. Maxilla reaches to below 1/3rd of the eye. Villiform teeth in both jaws. Band of small teeth on vomer, palatines and tongue. Moderately strong dorsal spines 7-8 in number. Second dorsal fin highest in front. Pectoral longer than the head; ventral small. Anal with 17 to 18 fin rays. Two free pre-anal spines. Caudal deeply forked. Naked area of the breast extends above pectoral fin base nearly to origin of lateral line forming a more or less triangular area bordering the operculum. Curved anterior part of lateral line much longer than the posterior straight portion with 25 feeble plates/scutes commencing under about the 20th dorsal ray becoming more prominent on the free portion of the tail.

General information : One of the most important of the commercial fish species found in the coastal areas and mouth of the Hooghly estuary. Though they reportedly grow to around 40 cm in length the specimens caught in Hooghly mouth are smaller in size seldom exceeding 30 cm. It is considered as good food fish.



***Pterois russelli* Bennett**

Common name in Bengali : Not known

Colour in life : Reddish in colour with 11-12, some times more, broad transverse bands on head and body. A black spot on the shoulder behind the opercle. Pectoral grey with black spots, its lowest 5 rays pinkish. Ventral membrane violet /grey with some white/yellow spots.

Some identifying characters : Body moderately elongate, compressed. Head usually with ridges and spines. Teeth villiform on jaws and vomer. Five pre-opercular and 2 opercular spines. A small turbinal spine. Eyes moderately large. Inter orbital space deeply concave. Both occipital and inter-orbital space scaled. Dorsal fin single. Dorsal fin spines greatly elongated, the membrane between the spines deeply incised. Pectoral fin rays also greatly elongated, pectoral fins extend up to the base of caudal or even beyond. The pectoral fin membrane, particularly between the first four rays, deeply incised.

General information : The species is very rarely found in the lowermost high saline zone of the Hooghly estuary. It reportedly attains a maximum length of about 30 cm.



***Dactylopterus orientalis* (Cuvier)**

Common name in Bengali : Urruhukku maach (Flying fish)

Colour in life : Pinkish with a blue-black tinge on the back, pinkish with a bluish tint on the abdomen. Dorsal and caudal rays spotted. Pectoral greyish spotted with deep grey or black.

Some identifying characters : Body elongated, rather more or less quadrangular in cross section, robust. Head large, anterior end blunt, bony. Head 5.5 -6 in total length. Eyes large, inter-orbital space a little concave. An occipital filament present. The two dorsal fins almost equal in length. Pectorals much elongated, rather enormous, extended almost up to the middle or even the end of the caudal. First portion of the pectoral, with shorter fin-rays, is rather detached from the larger portion. Body with scute like scales. Caudal truncate.

General information : The species is a marine one only very occasionally enters Hooghly estuary and therefore, may be considered as a rare one. The fish can glide over water using its extended pectorals. Reportedly grow upto a length of 38 cm. No commercial importance, not used as food fish. The photographed specimen was collected from Sagar Island.



***Mastacembelus pancalus* (Hamilton - Buchanan)**

Common name in Bengali : Pankal

Colour in life : Greenish olive along back, yellowish on belly. In some specimens yellowish with white spots on the body, in others the posterior portion of the body or the entire body is vertically striped. Soft dorsal, anal, pectoral and caudal fins yellowish with numerous black spots.

Some identifying characters : Body long, anterior portion slightly cylindrical, elongate, eel-like and compressed. Head long, pointed, snout long, conical. Mouth inferior, cleft of

mouth narrow. Gape of mouth small. Lips thin. Lower jaw smaller than the upper one. The ventral surface of the rostrum devoid of tooth plate. Pre-opercle with 2-5 strong small spines. Dorsal fin inserted above middle of pectoral fin, having a portion of 24-26 small spines and 30-46 soft rays. Dorsal and anal fins separate from the caudal. Caudal rounded. Lateral line complete.

General information : The Pankal is occasionally available in the Nabadwip - Barrackpore stretch of the Hooghly estuary. The fish is relished by the local population as a good and tasty fish. Has good market and fetches good price.



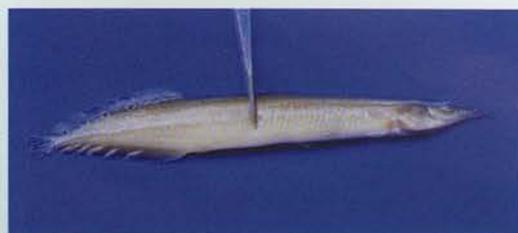
***Mastacembelus armatus* Lacepede**

Common name in Bengali : Ban, Baam

Colour in life : Blackish brown on the back, lighter on the sides and abdomen. A black undulating band with different intensity from behind the eye to base of soft dorsal or even beyond. Sometimes with short black band from below the spinous dorsal. Often with small black or brownish blotches on the body. Pectoral yellowish with brownish stripe.

Some identifying characters : Laterally compressed eel like body tapering at both ends. Head 6.5-7.5 in total length. Snout pointed, tri-lobed, little fleshy. No scale on the upper surface of head and snout. Sub-orbital spine present. Two to three pre-opercular denticles. Cleft of mouth narrow. A single long dorsal fin, with 32-39 small free spines, commences from about the half of the pectoral. Caudal confluent with the soft dorsal and anal. Pelvic fin absent.

General information : This species is the most preferred amongst the spiny eels not only because of its large size but also for its taste. The species is reported to grow around 60 cm. It inhabits freshwaters and is found in the freshwater zone of the Hooghly estuary.



***Macrognathus aculeatus* (Bloch)**

Common name in Bengali : Goiche

Colour in life : Slightly greenish/greyish above ; abdomen yellowish. 3-9 black ocelli fringed with white along the base of the soft dorsal. Pectoral some times yellowish.

Some identifying characters : Laterally compressed eel like body tapering at both ends. Head 5-6 in total length. Pre-opercle entire with no spine. Snout pointed with inferior surface of snout slightly concave and a little fleshy. Cleft of mouth narrow. A single long dorsal fin with 44-54 soft rays, its anterior end consists of 13-20 spines set separately and the length of spine increases posteriorly. Anal fin with 2-3 pre-anal spines of which the 2nd one is the largest and strongest. Number of soft rays in anal fin varies from 44-52. Caudal rounded, lateral line complete.

General information : Goiche is found in the freshwater zone of the Hooghly estuary and is caught generally in set-barriers. Found even above the tidal range. The species is of little commercial importance. Though is reported to grow around 38 cm normally encountered in the size range of 20-25cm.



***Channa striatus* (Bloch)**

Common name in Bengali : Shol

Colour in life : Dark greenish black /greyish above ; yellowish below. Blackish or greyish bands on the sides. Grey spots on cheeks and

lower surface of mouth. Ventral and anal fin greyish. There may be some spots /indistinct bars at the posterior end of dorsal fin.

Some identifying characters : Body cylindrical, elongated, little compressed posteriorly. Snake like head slightly depressed. Length of head 3.5-4 in total length. Nine rows of scales between the eye and the angle of the pre-opercle. Lower jaw larger, mouth terminal, cleft of mouth large. Conical teeth on lower jaw. Maxillary reaching to the lower side of the hind border of the eye. No barbel. Origin of pectoral, pelvic and dorsal almost on the same line. Dorsal long, extending to beyond the caudal peduncle, with 37-45 soft rays. No spinous ray. Anal fin extends from behind the anus to opposite to the end of dorsal with 23-26 rays. Caudal roundish. Intestine short, RLG below 1. Two intestinal caeca at the junction of stomach and intestine.

General information : *C. striatus* is a highly carnivorous fish. The species is the most choiced one among the murrels in West Bengal. This commercially important species with good market demand is common in the freshwater zone of the Hooghly estuary. Distributed in freshwater almost through out India.



***Channa marulius* (Hamilton -Buchanan)**

Common name in Bengali : Gajal, sal

Colour in life : Generally greenish-grey on the back, yellowish below. 4-5 roundish black blotches towards the posterior end of the body below lateral line (most characteristic feature in distinguishing it from other species of the genus *Channa*). Young ones with orange lateral bands.

Some identifying characters : Body cylindrical, elongated, little compressed posteriorly. Snake like head slightly depressed. Length of head 4-5 in total length. Ten rows

of scales between the eye and the angle of the pre-opercle. Lower jaw larger, mouth terminal, cleft of mouth large. Numerous villiform teeth in rows on jaws, vomer and palate. A posterior row of 12 large conical teeth on each ramus. Maxillary reaching to the lower side of the hind border of the eye. No barbel. Dorsal long, extending to beyond the caudal peduncle, with 45--55 soft rays.

No spinous ray. Anal fin extends from behind the anus to opposite to the end of dorsal with 28-36 rays. Caudal roundish. Lateral line complete with 60-70 scales. The lateral line bends downwards after 16-18 scales for two rows and then passes straight. Scales cycloid. Intestine short, RLG below 1.

General information : The species is fairly common in the upper freshwater zone of the Hooghly estuary. Not esteemed as food by local people. The species has virtually no commercial importance in West Bengal and its contribution to the total landing is negligible.



***Channa punctatus* (Bloch)**

Common name in Bengali : Lata, Taki

Colour in life : Generally greenish grey on the back, yellow or whitish on the sides and abdomen. A dark stripe along the side of the head. Several blackish/greyish band from the back down to middle of the body. Fins excepting pectorals, spotted or striated. Dark bands at the base of the fins. In some cases scattered black spots on head and body.

Some identifying characters : Body cylindrical, elongated, little compressed posteriorly. Snake like head slightly depressed. Length of head 3.3-4 in total length. Five rows of scales between the eye and the angle of the pre-opercle. Lower jaw larger, mouth

terminal, cleft of mouth large. A single row of villiform teeth on jaws which increases to 5-6 rows at the symphysis. Numerous villiform teeth on vomer and palate. A posterior row of 3-6 large conical teeth on each ramus. Maxillary reaching to the lower side of the hind border of the eye. No barbel. Dorsal long, extending to beyond the caudal peduncle, with 28--33 soft rays. No spinous ray. Anal fin extends from behind the anus to opposite to the end of dorsal with 20-23 rays. Caudal roundish. Lateral line scales 35-40. The lateral line bends down below 12th dorsal ray. Intestine short, RLG below 1. Two intestinal caeca at the junction of stomach and intestine.

General information : The species is found in the freshwater zone of the Hooghly estuary. Well distributed in the freshwater bodies of India. Lata is a carnivorous species predominantly feeding on small fishes and crustaceans. Attains around 30 cm or so in length. This air-breathing fish has moderate market demand.



***Triacanthus brevirostris* Schlegel**

Common name in Bengali : Tinkanta / Tinkanti

Colour in life : Silvery. A prominent black blotch at the base of the 1st dorsal spine, sometimes with a little extension on the back. Usually a dark supra-orbital blotch.

Some identifying characters : Body oblong, fairly compressed with a somewhat elongated caudal portion. The profile from snout to the 1st dorsal fin is considerably elevated, that opposite to orbit a little convex. Head length 4.25-4.66 in total length. Eyes located high

on the head. Eight compressed cutting teeth on the outer row of the upper jaw, with an inner row of usually 6 rounded teeth. Mandible with 10 outer and 2 inner row of teeth. First dorsal spine long and strong, longer or equal to head length in juveniles, shorter in adults. Two dorsal are close in young but set apart in adults. Ventral spine strong, slightly shorter than the 1st dorsal spine. Pectoral short and rounded. Caudal fin deeply forked.

General information : This is a non-commercial species and is not preferred as food. The fish is found in the landings from lower most part of the Hooghly estuary.



***Cynoglossus arel* (Bloch)**

Common name in Bengali : Banspata.

Colour in life : Brownish on the ocular side. Whitish on the blind side.

Some identifying characters : Body flat, tongue like in shape. Snout somewhat rounded. Length of head 4.75-5 in total length. Upper eye very slightly in advance of lower, almost on the same line. Angle of mouth upwards behind edge of lower orbit. The pre-opercle is hidden beneath the skin. Rostral hook short. Two lateral lines on ocular side. 7-9 rows of scales between the lateral lines. An indistinct lateral line on blind side. Scales slightly ctenoid on the coloured side, cycloid on the blind side.

General information : This tongue sole, reported to grow about 28 cm in length, is basically a habitant of the saline zone of the Hooghly estuary. This bottom living species is generally caught by bottom trawls in high saline zone of the Hooghly estuary.



***Cynoglossus cynoglossus* (Hamilton - Buchanan)**

Common name in Bengali : Banspata

Colour in life : Brownish stone/ marbeled darker

Some identifying characters : Snout somewhat pointed and longer. Upper eye slightly in advance of lower. Angle of mouth below and middle or end of lower orbit. The pre-opercle is hidden beneath the skin. No lateral line on blind side (according to some workers a lateral line is present in the blind side). 11-14 rows of scale between the lateral lines in the ocular side. Dorsal, anal and caudal fin united. Scales ctenoid on both sides.

General information : This species of tongue sole is distributed from saline to freshwater zone of the Hooghly estuary. Though this bottom living fishes are generally caught by bottom trawls in high saline zone in the freshwater zone they are mainly caught in set-barriers. Is considered as a good food fish.



***Synaptura albomaculata* Kaup**

Common name in Bengali : Banspata

Colour in life : Greenish black on ocular side. Dorsal and anal fins blakish, their edge on both sides with a narrow conspicuous white margin.

Some identifying characters : Flat fishes with elongated body broad anteriorly, tapering posteriorly. Eyes on the right side. Eyes separated by a scaly inter space. Upper eye

slightly advance than lower. Anterior part of snout with bony prominence. Length of head 5.5-6.0 in total length. Two tubular nostrils on coloured side. A minute tentacle between the nostrils. Pectoral very small with 7-8 fin rays, on the coloured side. A minute pectoral on blind side. Dorsal and anal fin completely joined with caudal which is obtusely pointed. Scales ctenoid on coloured and cycloid on blind side.

General information : The fish is basically a habitant of the saline zone of the Hooghly estuary. This bottom living species is generally caught by bottom trawls in the high saline zone of the estuary. The species reportedly grows to about 30 cm. No interest to fisheries of Hooghly estuary.



***Euryglossa orientalis* (Bloch & Schneider)**

Common name in Bengali : Banspata

Colour in life : Greyish/Brownish with pinkish or deep brownish blotches; with short streaks above and a few small blotches or streaks below the lateral line.

Some identifying characters : Ovate flat fishes with eyes on the right side. The upper one slightly anterior to the lower. Dorsal fin extends above head to eye or even beyond, with 62-72 fin rays. Posterior end of dorsal and anal completely joined with caudal. Right pectoral longer than the left. Lower lip feebly fringed. Two tubular nostrils in front of lower eye in the ocular side. The pre-opercular edge is hidden under the skin and scale of head.

General information : This flat fish is found from the mouth of the Hooghly estuary upto the freshwater zone. The photograph of the specimen figured in the text was collected from a set-barrier at Monirampur, Barrackpore. The species reportedly grow to a maximum length of 22cm. It is virtually of no interest to fisheries.

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