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**Field identification manual for
indigenous freshwater fish of
undivided Paschim Medinipur District**

Prepared By

Angsuman Chanda

Assistant Professor, PG Department of Zoology



Raja N.L. Khan Women's College (Autonomous)

Gope Palace • Midnapore • Paschim Medinipur • West Bengal • India

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Dr. Jayasree Laha

Principal

Raja N. L. Khan Women's College (Autonomous),
Gope Palace, Midnapur, Vidyasagar University,
Paschim Midnapur-721102, West Bengal, India.

www.rnlkwc.ac.in

email: rnlkcollege@gmail.com

Mob. No: 9064820067

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Dr. Biswajit Mandal

Dr. Angsuman Chanda

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It's my privilege to acclaim that Raja Narendra Lal Khan Women's College, in spite of being situated in rural surroundings at Phulpahari Mouza on the outskirts of Midnapore Town has all the modern facilities and equipment required in higher education today. Our dynamic website provides comprehensive information regarding all academic and infrastructural facilities available within the college campus - "smart classrooms" equipped with modern teaching aids in each Department handled by disciplined students, research scholars, highly qualified and dedicated faculty and efficient staff; modernised laboratories in all science departments; language laboratory; Mentorship; Wi-Fi facilities inside the campus; hostels for the resident students within the College premises; extensive playgrounds; fully furnished gymnasium and spacious auditorium; well-stocked library; entire campus under CCTV surveillance; biometric attendance; free health check up & medical facility; cheap canteen and bus service. The college has a very active Career Advancement Centre which offers a number of value added certificate course with nominal fees and arranges regular campus interviews attended by renowned companies. Our college has been selected by NSDC for imparting training in Office Management & Accounting. With the help and support of the West Bengal Tribal Corporation, Govt. of West Bengal, we have initiated 2 free certificate course - for our tribal students. Once you join the College as a student I sincerely hope you will enrich our institution as well as yourself by your honest efforts using all the facilities and opportunities it provides to grow into a complete, mature and socially aware human being and will be proud to talk about your alma mater wherever you go.

We have 11 Post Graduate departments among which department of Zoology is the oldest one. Zoology PG department was established in 2004 and performed satisfactorily evidenced with their student's performance in University results, annual activities of organizing seminar, workshop, extension activities, production of Ph.D students, research publication and procuring research grants from different funding agencies throughout India like UGC, DST & DBT, WBBB etc. Publications by the faculties are highly appreciable. Present publication is a monograph of field identification fish which certainly be a helpful tool for the purpose for which it has been prepared. I compliment the author for his effort to publish such a helpful monograph on field identification of indigenous freshwater fish of undivided Paschim Medinipur.

I hope this comprehensive publication will be of great help to all the stakeholders of the region related to fish and fisheries.

Principal,

Raja N.L. Khan Women's College

SUMMARY

A total of 80 indigenous freshwater fish species has been identified from the undivided Paschim Medinipur district, belonging to 50 different genera under 24 different families and 9 different orders. All the fish species of this manual were systematically represented following current taxonomic literatures. Only systematic position, diagnosis, distribution (three tire- in study area, in India and world distribution) along with colour photograughs of as per as fresh fish specimens were provided for easy and on spot identification of species. Local name of each species has been provided for easy identity of the fish by local people. A conclusion and an extended list of literature are provided at the end of the manual for interested person to know fish taxonomy in depth for his/her satisfaction and necessity.

Maximum number of fish species (32) has been recorded under the order Cypriniformes followed by Perciformes (23 species), Siluriformes (14 species), Synbranchiformes (4 species), Osteoglossiformes & Beloniformes (2 species each) and Cyprinodontiformes, Clupiformes&Anguilliformes each having one species. Most abundant family is Cyprinidae having 28 species followed by Gobiidae (7 species), Bagridae (6 species), Channidae (5 species), Ambassidae (4 species), Cobitidae (4 species), Mastacembelidae (4 species) and remaining familiea having either 2 or 1 species; 4 families with two species each and 14 families with one species each. This is related to the restricted distribution of various species of indigenous fishes in some specific blocks of undivided Paschim Medinipur.

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Field identification manual for indigenous freshwater fish of undivided Paschim Medinipur District

Angsuman Chanda

Assistant Professor, PG Department of Zoology, Raja N. L. Khan Women's College(Autonomous),

1. Introduction

Indigenous freshwater fishes are often an important ingredient in the diet of village people who live in the proximity of freshwater bodies. Word 'Indigenous' means the originating in and characteristic of a particular region or country & native area. Indigenous freshwater fishes can be categorising into two broad groups. First category is small indigenous fish (SIF) are defined as fishes which grow to the size of 25-30 cm in mature or adult stage of their life cycle (Felts et al, 1996). Second category is the larger one which grows to the size larger than of 25-30 cm in mature or adult stage of their life cycle. Both freshwater fishes inhabit in rivers and tributaries, floodplains, ponds, tanks, lakes, beels, streams, lowland areas, wetlands and paddy fields is their natural habitat. Indigenous fish can live even in harsh environmental condition and able to reproduce and grow rapidly in favourable condition. These species are not only a source of vital protein to the rural poor but also a valuable source of micro-nutrients such as calcium, zinc, iron & fatty acids (Roos et al., 2007; Halwart 2008). Research has proved that the bioavailability of calcium from small indigenous freshwater fish species are at par with that derived from cow milk (Ross et al., 2007). It has been reported that some species

such as *A. mola*, *O. cotio cotio*, *E. danricus* and *C. soborna* contain high amount of vitamin A and other micronutrients and minerals (Thilsted et al., 1997). These species also can provide a source of supplementary income to rural households. Given the local demand for small indigenous fish species of freshwater origin, the FAO (1999) has also indicated the possibility of integrating such indigenous species into freshwater culture systems. Small scale aquaculture along with Indian major carps of *A. mola*, *Puntius sophore*, *Osteobramacotio*, *Cirrihinus reba*, *Labeo bata*, *Gudusia chapra* have been reported (Ayyappan and Jena J.K.2003, Roos et al. 2003, Jena et al., 2008) in India. In the Indian region out of 2500 species, 930 are freshwater inhabitants & 1570 are marine (K.C. Jayaram 2010). ZSI have recorded 2641 Pisces in the year 2012. A lot of works has been done in Northern region followed by southern region of India. Recent paper (Goswami et al., 2012) enlisted 422 fish species from north east India, belonging to 133 genera and 38 families. Rema and Indra (2009) have reported 667 species under 149 Genera of 35 families in southern region. 950 species of freshwater fishes found in India [Fishbase (ver.10/2015)]. If we look for the report from West Bengal, we see that a very few works has

been done on freshwater fishes from the region.

In West Bengal 171 freshwater fish species was reported by Sen, 1992. After few years there were a wide change in number of fish species has been reported. Mishra et al. (2003) studied on the freshwater fishes of Midnapur, Bankura and Hooghly districts. Barman. R.P. 2007 recorded 239 freshwater species belonging to 147 genera, 49 families and 15 order. 70 indigenous ornamental fish species belonging to 45 genera, 30 families and 9 orders were reported by Basu *et al.* (2012). There were a few works on freshwater fishes has been recorded in West Bengal. The record of freshwater fish fauna of Paschim Medinipur is mostly done by some recent works of Paul and Chanda, 2017; Kisku et al., 2017; and Pahari et al., 2017. All of these works are faunal documentations but these are not a comprehensive field guide to identify the fish species in field by the fish lovers as well as biginers of fish fish research having deficiency of fish taxonomic knowledge. Therefore, present work is the first attempt towards the field identification of indigenous freshwater fish fauna of Paschim Medinipur. The present document certainly provides an insight to the macro-faunal diversity of the area and has established a baseline for future studies of the fishery researcher and fish lovers.

2. Materials and Methods

Specimens were collected from different river, pond, bill, market applying different commercial fishing method throughout all the blocks of undivided Paschim Medinipur during May 2015 to November 2018. Collection of fish fauna was done at early morning and specimens were

immediately preserved in 4-6% formaldehyde and were brought to laboratory in preserved condition. Then fish specimen were washed and finally preserved in 4-6% formaldehyde. Body parts of all the specimen have been dissected and studied for identification. In some cases additional important diagnostic characters are included.

3. Study site (Fig. 1)

The study site is Paschim Medinipur, West Bengal, India (22° 25' N 87° 19'E) located in the laterite belt. Climatic conditions under the influence of South-West and North-East monsoon. The climate of this district is characterized by hot-summer with high humidity, abundant rainfall and moderate winter.

4. Measurement

All Measurements of fish were made in metric system as followed by Talwar-Jhingran, 1991; Jayaram, K.C, 1999; Jayaram, K.C. 2010 & www.fishbase.org. ver 2015.4.

5. Morphology & Terminology

Identification of fish is a very taff job and painstaking due to complexity in classification as well as confusing characteristic feature very from region to region even in the same species. Therefore, present systematic study rosed to the level of DNA barcoding and molecular phylogenetics. Molecular phylogenetics and taxonomic analysis is sophisticated instrument dependent, technology based technic of classification and quite time taking and costly process. It is essential for advancement science of taxonomy but in recreational taxonomy, name of the animal on spot is the most important which

can be guided only by the known morphological feature of the animal. In the present study fish morphological features are followed to the work done by Talawer & Jhingran (1991), Jayaram (2010), Rainboth, J. (1996), Keat-Chuan Ng C. *et al.* (2017). A pictorial presentation of morphological features necessary for fish identification has been given next.

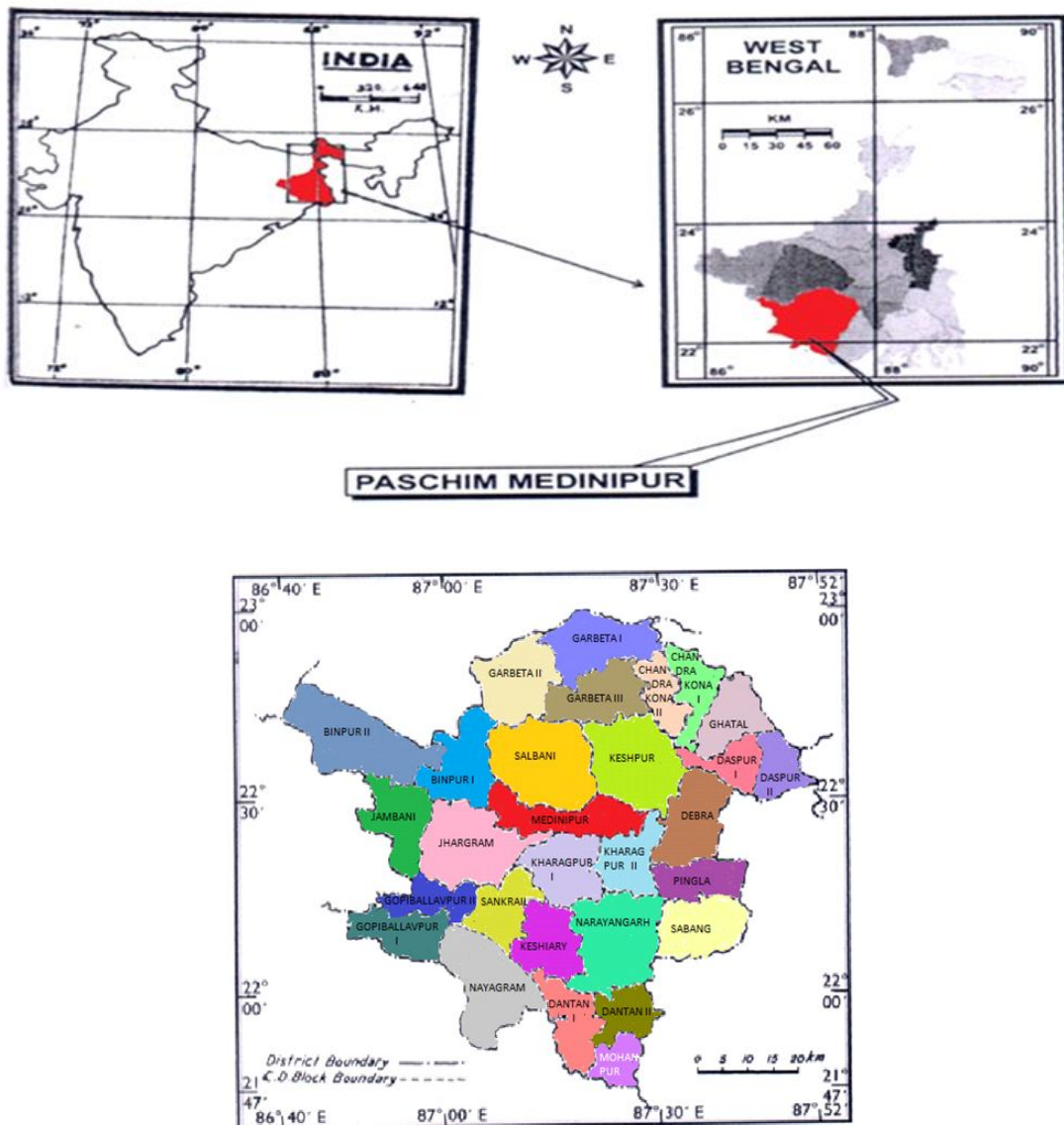


Fig. 1: Geographical position of study area from where fish specimens were reported.

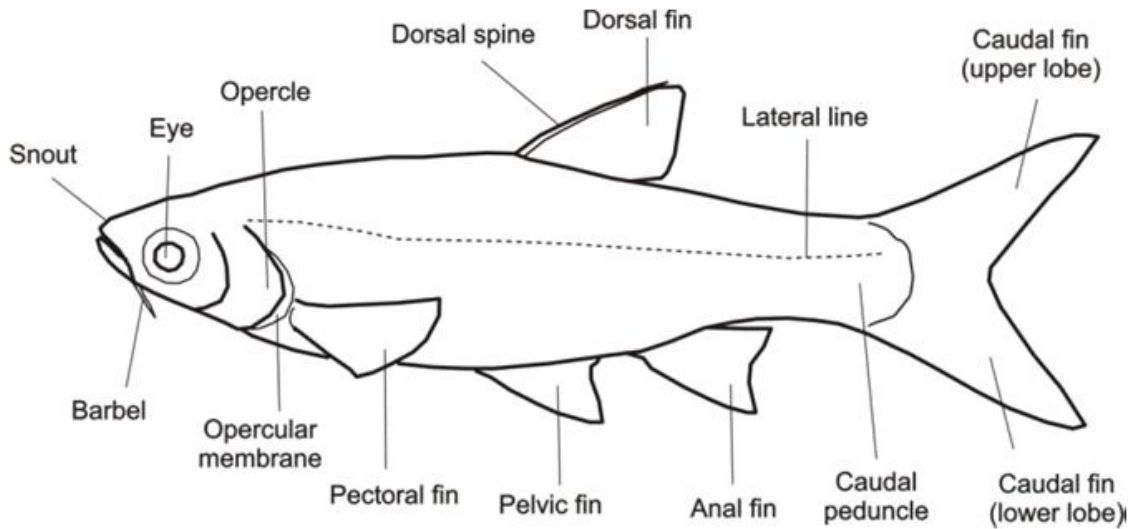


Figure 2: Key morphological features of a species from the Cyprinidae family (Source: Adapted from Rainboth, 1996).

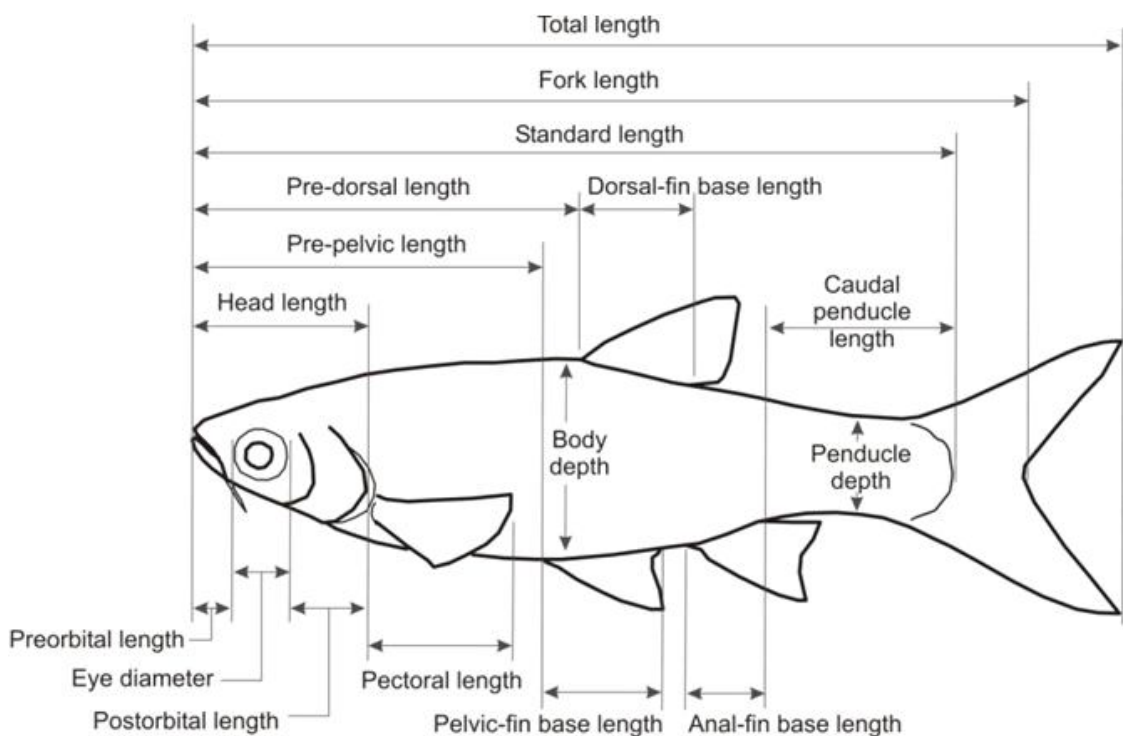


Figure 3: Morphometric features of fish for identification (Source: Adapted from Rainboth, 1996).

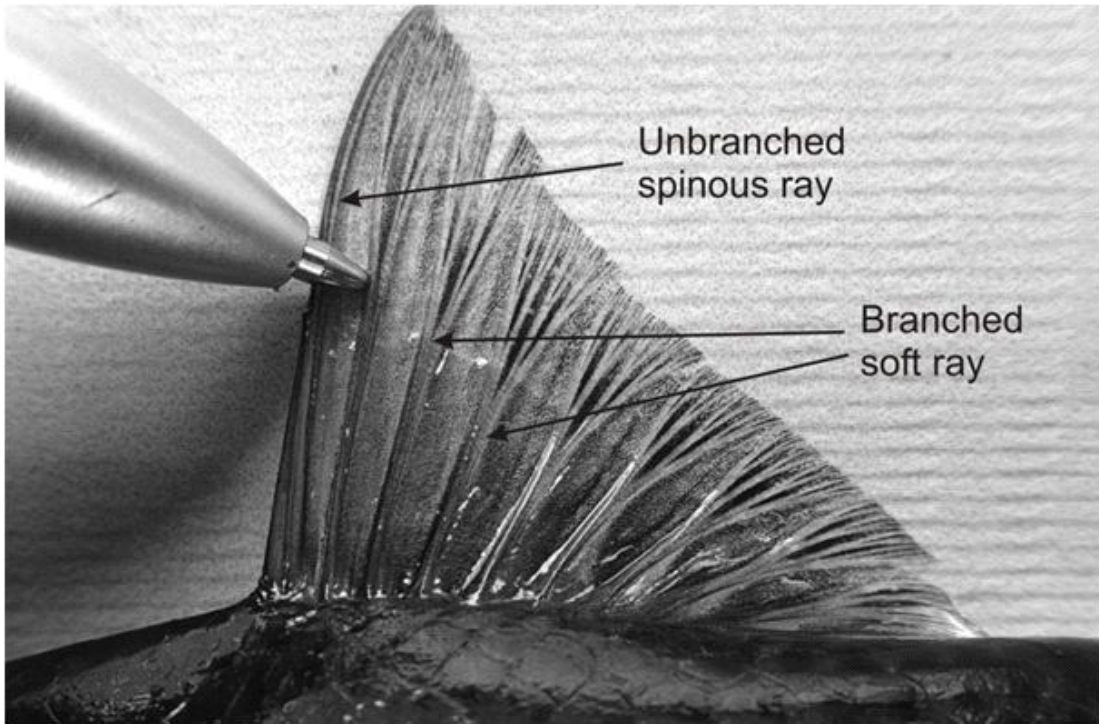


Figure 4: A close-up view of fin ray features of fish under the Actinopterygii class(Adopted from Keat-Chuan Ng C. et al., 2017).

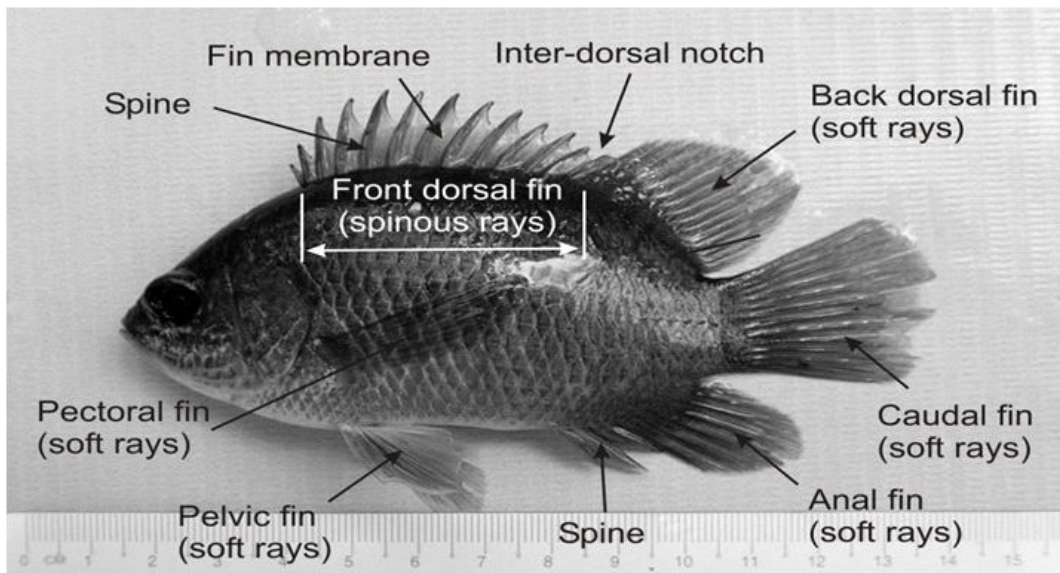


Figure 5: An example of fin positions and ray structures of a fish with a contiguous dorsal fin (Adopted from Keat-Chuan Ng C. et al., 2017).

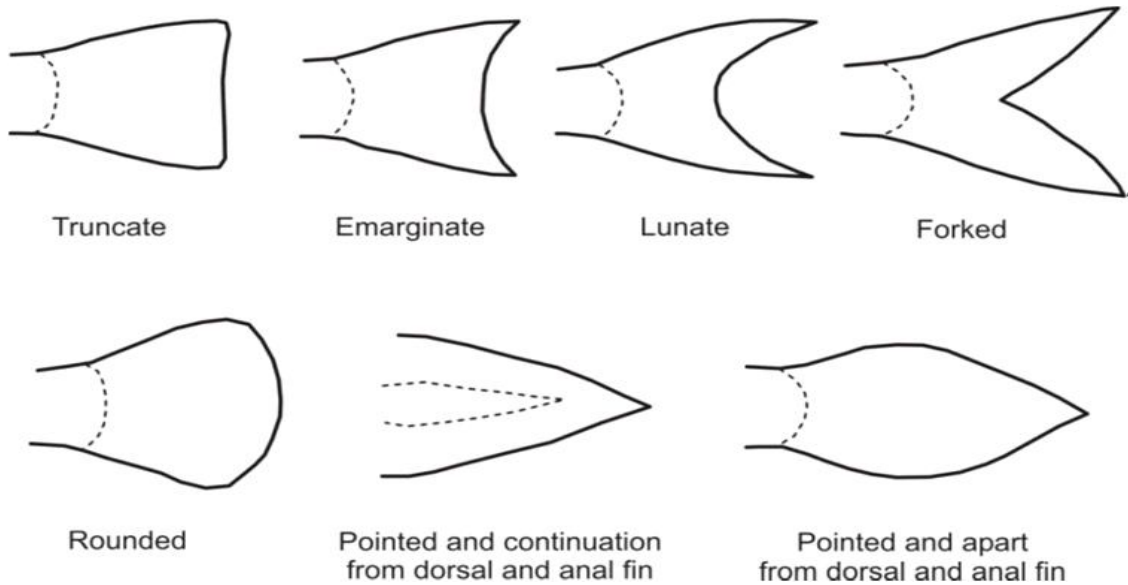


Figure 6: Common caudal fin features (Source: Adapted from Rainboth, 1996).

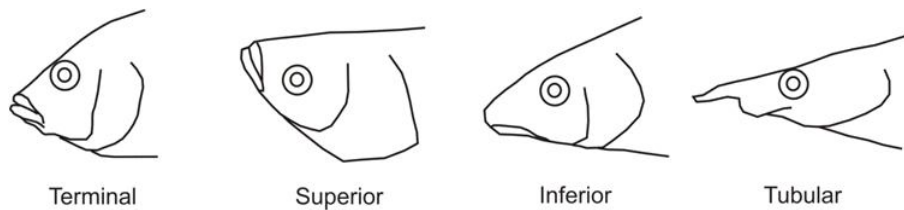


Figure 7: Common mouth patterns (Adopted from Keat-Chuan Ng C. *et al.*, 2017).

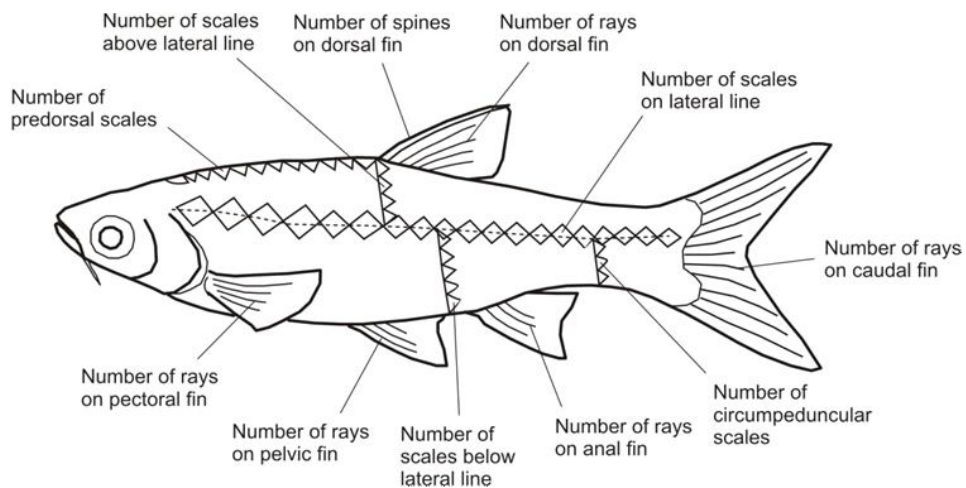


Figure 8: Common meristic features for fish identification (Source: Adapted from Rainboth, 1996 and Ambak, 2012).

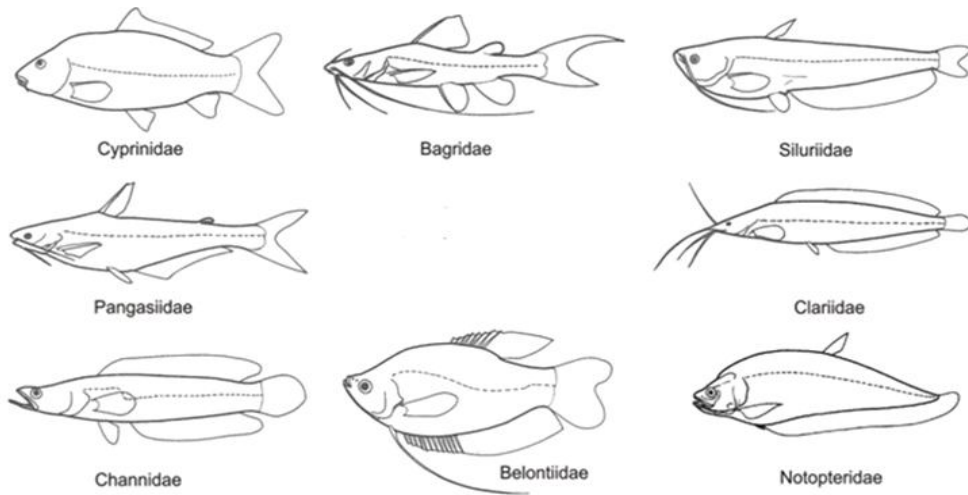


Figure 9: Species from each family have a similar morphological profile to provide identification clues (Source: Adapted from Rainboth, 1996).

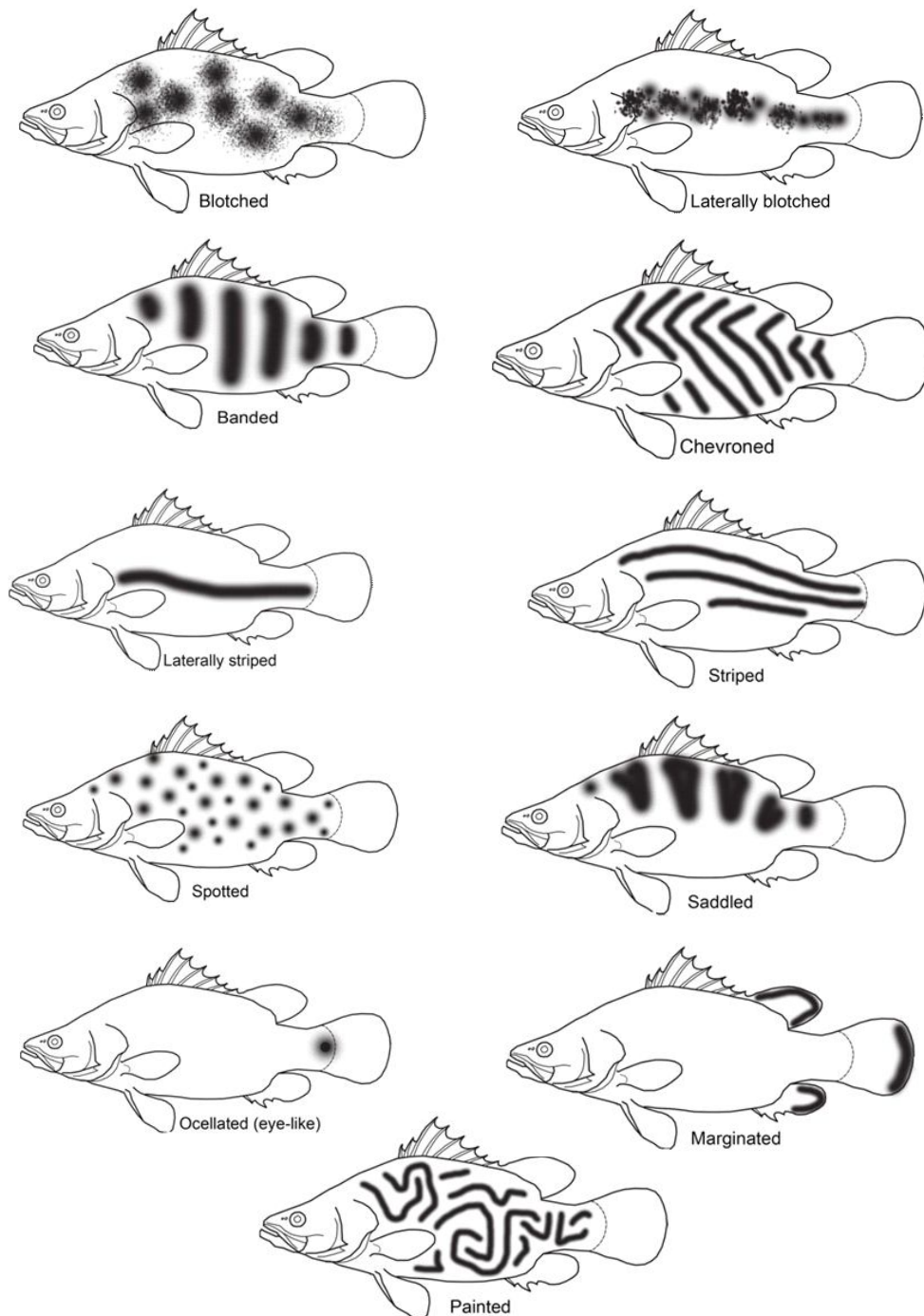


Figure 10: Common terms used to describe body markings and patterns on a representative teleost fish (Adopted from Keat-Chuan Ng C. *et al.*, 2017).

6. Systematic account of fish

Fishes under study are belongs to the class Actinopterygii. A brief account of its systematic position is given bellow:

Kingdom : Animalia (Linnaeus, 1758)

Phylum : Chordata (Haeckel, 1874)

Subphylum : Vertebrata J. B. Lamarck, 1801

Class : Actinopterygii (Klein, 1885)

Key to the fish orders found in Paschim Midnapur:

1. Body elongate, cylindrical in front, somewhat compressed along tail.....
Anguilliformes
Body laterally compressed 2
2. Dorsal and anal fins vestigial or absent Synbranchiformes
Dorsal fin and anal fins present 3
3. Abdomen with single or double serration 4
Abdomen edge rounded 5
4. Scutes present on the abdomen, abdomen with double serration Osteoglossiformes
Scutes absent on the abdomen, abdomen with single serration Clupeiformes
5. Skin without scales Siluriformes
Skin with scales 6
6. Upper surface of scales are rough Perciformes
Upper surface of scales are smooth7
7. Both lips and lower jaw extended with long beaks with sharp teeth Beloniformes
Lips are not extended 8
8. Lateral line present on the head not on the body Cyprinodontiformes
Lateral line present on the body
Cypriniformes

Order Osteoglossiformes L.S. Berg, 1940

Family Notopteridae Bleeker, 1859

Genus *Notopterus* Lacepede, 1800

Notopterus notopterus (Pallas, 1769)

Local name: Pholui



Fig.1

Diagnosis of the species (Fig. 1): Body oblong and strongly compressed. Mouth moderate, maxilla extends to midorbit. Dorsal part of head convex or only slightly concave. Dorsal fin inserted nearer the tip of snout than the base of caudal fin. Scales are minute, considerably larger on opercles than the body. Anal fin is continuous with the caudal fin. Body color is silvery white with a few spots on body. Lateral line present and complete with 230-240 scales. Head 19.3% SL, Height 35.3% SL, Eye 20% HL. Fin formula – D.7-9; P.15-17; V. 5-6; A. 97-111.

Distribution: India: It has been widely distributed in India (Ganges, Mahanadi, Krishna, Cauvery, and other river basins in southern India), Rivers Kameng, Dirong, Siang, Noadhing, Buriching, Arunachal Pradesh (Nath & Dey, 2000).

Paschim Medinipur: During the present study the species has been recorded in all 29 blocks of Paschim Medinipur.

Elsewhere: *Notopterus notopterus* is found in Irrawaddy and Salween, Meklong, Chao Phraya, Mekong and virtually all coastal river basins of peninsular Thailand and Malaysia; Sumatra and Java.

***Chitala chitala* (Hamilton, 1822)**

Local name: Chital



Fig.2

Diagnosis of the species (Fig. 2): Body elongated, head and body strongly compressed laterally. Dorsal profile is highly concave. Scales are very minute and short dorsal fin. Anal fin is very long and confluent with caudal fin. Pectoral fins are reduced. Dorsal portion is coppery green coloured and silvery at sides and below. 15 silvery bars present on each side of dorsal ridge. 5-9 small black spots near the end of the caudal fin. Lateral line is complete. Fin formula – D.9; P1.15-16; P2. 6; A. 115-120.

Distribution: India: It has been widely distributed in India (Ganges, Mahanadi river basin, Arunachal Pradesh).

Paschim Medinipur: During the present study the species has been found in Narayangarh block of Paschim Medinipur.

Elsewhere: In other country Pakistan; Myanmar; Bangladesh; Philippines.

Order Cypriniformes Bleeker, 1859

Family Cyprinidae Howes G.J., 1991

Subfamily Danioninae

Genus *Amblypharyngodon* Bleeker, 1860

***Amblypharyngodon mola* (Hamilton, 1822)**

Local name: Mourala



Fig.3

Diagnosis of the species (Fig. 3, 3a fresh in aquarium): Dorsal profile is more convex than the ventral profile. Barbels are absent. Caudal fin deeply forked and lobes are pointed. Body color is lightly greenish at dorsal and silvery on side and ventral portion. Lateral line with 65-86 scales. Head 27.1-27.2% SL, Height 27.1-27.2 SL, Eye 31.2- 31.3% HL. Fin formula D. ii-iii 7; P. 14-15, V. 9, A. 7-9.



Fig.3a

Distribution: India: It has been widely distributed in India (Andaman Is., Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chandigarh, Chattisgarh, Dadra-Nagar-Haveli,

Daman, Darjiling, Delhi, Diu, Goa, Gujarat, Haryana, Himachal Pradesh, Jammu-Kashmir, Jharkand, Karaikal, Karnataka, Laccadive Is., Madhya Pradesh, Maharashtra, Mahé, Manipur, Meghalaya, Mizoram, Nagaland, Nicobar Is., Odisha, Pondicherry, Punjab, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttaranchal, Uttar Pradesh, West Bengal).

Paschim Medinipur: During the present study the species has been recorded from all 29 blocks of Paschim Medinipur.

Elsewhere: Other countries like Pakistan, Bangladesh and Myanmar.

Genus *Barilius* F.Hamilton, 1822

***Barilius barna* (Hamilton, 1822)**

Local name: Boroli



Fig.4

Diagnosis of the species (Fig. 4): Body compressed, ventral portion is more convex than the dorsal. Mouth moderate and barbels are absent. Body with 7-11 vertical dark bars. 36-38 scales on lateral line. Fin formula D. 9; P. 14-15; V. 9; A. 12-14.

Distribution: India: It is distributed mainly in north-east India.

Paschim Medinipur: During the present study the species has been found in Gopiballavpur I and Gopiballavpur II blocks of Paschim Medinipur.

Elsewhere: Bangladesh; Bhutan; Myanmar; Nepal.

***Barilius vagra* (Hamilton, 1822)**

Local name: Boroli



Fig.5

Diagnosis of the species (Fig. 5): Body shallow, mouth moderate, jaws long. Barbels are two pairs, rostral barbels shorter than eye diameter and maxillary pair very short. 38-44 scales in lateral line. Pectoral fin slightly shorter than head. Caudal fins are forked and the lobes are equal. Body is silvery with 13- 18 bluish vertical bar. Fin formula D. 9-10; P. 14-16; V. 9; A. 12-15.

Distribution:India: It is distributed in India (Uttaranchal, Uttar Pradesh).

Paschim Medinipur: During the present study the species has been found in Gopiballavpur I and Gopiballavpur II blocks of Paschim Medinipur.

Elsewhere: Afghanistan, Pakistan, Nepal, Bangladesh and Sri Lanka.

Genus *Cabdio* (Hamilton, 1822)

***Cabdio morar* (Hamilton, 1822)**

Local name: Darkina



Fig.6

Diagnosis of the species (Fig. 6): Body elongate and laterally compressed. Mouth is inferior, lower jaw shorter than upper jaw. No barbells. Dorsal fin originated behind pelvic fin base. Head 19.8-20.0% SL, Height 21.4-22% SL, Eye 30.0- 30.2% HL. Lateral line curved; go through the lower half of the body with 36-42 scales. Body color is black brown. Fin formula- D ii-iii 7-9; P 14-15; V 8; A ii 8-10.

Distribution: India: It is distributed in northern and northeastern India (Uttar Pradesh, Dehra Dun, and Nainital).

Paschim Medinipur: During the present study this species was found in Gopiballavpur I, Gopiballavpur II, Nayagram, Keshiary, Ghatal and Salboni blocks of Paschim Medinipur.

Elsewhere: Iran; Pakistan: Swat River drainage; Nepal; Bangladesh; Myanmar; and Thailand.

Genus *Danio* Hamilton, 1822

***Danio rerio* (Hamilton, 1822)**

Local name: Nirali



Fig.7

Diagnosis of the species (Fig. 7): Body elongate, slightly compressed, ventral portion more curved than the dorsal portion. Mouth oblique and directed upward. Barbells are three pairs. Rostral barbells extend to anterior margin of orbit; two pairs maxillary barbells, one pair extending beyond pectoral fin base and other pair is rudimentary. Five uniformly, pigmented, horizontal stripes on the side of the body, all extending onto the end of caudal fin rays. Dorsal fin originated from opposite of anal fin. Caudal fin forked with equal lobe. Anal fin distinctively striped. Branched anal fin rays 10-12. Lateral line absent or incomplete with 26-30 scales in the series.

Distribution: India: It has been widely distributed in India (Arunachal Pradesh, Assam, Karnataka, Meghalaya, Orissa, Uttar Pradesh, West Bengal).

Paschim Medinipur: During the present study the species has been found in Gopiballavpur I, Gopiballavpur II, Jhargram and Keshiary blocks of Paschim Medinipur.

Elsewhere: Bangladesh; Nepal.

Remarks: Two pairs maxillary barbells, one pair extending beyond pectoral fin base and other pair is rudimentary.

Genus *Esomus* Swainson, 1839

***Esomus danricus* (Hamilton, 1822)**

Local name: Daria



Fig. 8

Diagnosis of the species (Fig. 8): Body elongate and compressed, body depth 3.3 to 4.8 times in SL. Head pointed, its length 3.5 to 5 times in SL. Mouth small with two pairs of barbells of which maxillary is extremely long reaching middle of the body. Pectoral fin is long and pointed. Lateral line incomplete with 27-32 scales in longitudinal series. Body colour is gray green. A broad lateral band present from mouth to caudal fin base. Fin formula - D ii 6; P i 11-13; V i 6-7; A iii 4-5.

Distribution: India: It has been widely distributed in India.

Paschim Medinipur: During the present study the species has been found in all blocks of

Paschim Medinipur.

Elsewhere: Bangladesh; Myanmar; Nepal; Pakistan; Sri Lanka.

Genus *Laubuca* Bleeker, 1860

***Laubuca laubuca* (Hamilton, 1822)**

Local name: Chuna



Fig. 9

Diagnosis of the species (Fig. 9): Body deep and compressed. Mouth is slightly oblique. Depth of the body is 2.8-3.6 times in SL. Pectoral fins large and wing like. Lateral line complete with 31-37 scales. Body colour is shining silver to greenish gray. A deep black blotch is present at the base of caudal fin. Fins are light orange colour. Fin formula - D 10-11; P 9-13; V i 6; A 17-22.

Distribution: India: It has been found in India (Andhra Pradesh, Orissa, West Bengal, Assam, and Tripura).

Paschim Medinipur: During the present study the species has been found in Dantan I, Nayagram, Keshiary, Gopiballavpur I, Gopiballavpur II blocks of Paschim Medinipur.

Elsewhere: Bangladesh, Sri Lanka, Pakistan, Myanmar, Nepal, Malay Peninsula and Indonesia.

Genus *Rasbora* Bleeker, 1860
***Rasbora daniconius* (Hamilton, 1822)**
Local name: Daria



Fig. 10

Diagnosis of the species (Fig. 10): Body elongated, oblong & compressed with small mouth. No barbells. Lateral line complete & descends very gradually. 21-34 scales on lateral line. Body color olive on back & silvery flanks and belly. A prominent blue or black stripe is present from eye to base of caudal fin which is delicately edged above & below by a thin metallic golden line. A narrow dark spot above anal fin is present. Fin formula- D ii 7; P 14-15; V 9; A 7.

Distribution: India: Kerala, Maharashtra, Tamilnadu and Tripura.

Paschim Medinipur: During the present study the species has been found in Gopiballavpur I, Narayangarh blocks of Paschim Medinipur.

Elsewhere: It has been found in Bangladesh;

Bhutan; Cambodia; Indonesia; Lao People's Democratic Republic; Malaysia; Myanmar; Nepal; Pakistan; Sri Lanka; Thailand; Viet Nam.

Genus *Salmostoma* Swainson, 1839
***Salmostoma bacaila* (Hamilton, 1822)**
Local name: Banspata/ Khoyra/ Chela



Fig.11

Diagnosis of the species (Fig. 11): Body elongate and strongly compressed. Mouth is oblique, lower jaw with a symphyseal knob. Dorsal fin present in the opposite of anal fin. Lateral line present in downward with 86-110 scales. Body color silvery. Fin formula- D 9-10; P 12-13; V i 8; A 13-15.

Distribution: India: It has been found in India (Maharashtra, Orissa and Tripura).

Paschim Medinipur: During the present study the species has been found in Gopiballavpur I, Gopiballavpur II, Narayangarh, Debra, Binpur II, Jhargram, Salboni blocks of Paschim Medinipur.

Elsewhere: Pakistan, Bangladesh and Nepal, Afghanistan.

***Salmostoma phulo* (Hamilton, 1822)**

Local name: Banspata/ Khoyra



Fig.12

Diagnosis of the species (Fig. 12): Body elongate and compressed. Lower jaw with a distinct symphyseal process. Dorsal fin inserted in the opposite of anal fin. Pectoral does not reach the pelvic. Caudal deeply forked. Lateral line curved in downward and complete with 99-112 scales. Body color silvery with a bright silvery lateral band. Fin formula- D 8-9; P 11-13; V 8; A 18-21.

Distribution: India: It has been found in India (Maharashtra, West Bengal and Assam).

Paschim Medinipur: During the present study the species has been found in Sankrail, Gopiballavpur I, Gopiballavpur II, Mohanpur blocks of Paschim Medinipur.

Elsewhere: Bangladesh, Nepal.

***Salmostoma sardinella* (Valenciennes, 1844)**

Local name: Khoyra



Fig.13

Diagnosis of the species (Fig. 13): Body elongate and compressed. Dorsal and ventral profile equally convex. Mouth oblique, lower

jaw with a rudimentary symphyseal knob. Dorsal fin present above or slightly behind origin of anal fin. Lateral line present with 47-53 scales. Body color silvery. Fin formula- D 9-10; P 12-13; V i 7; A iii 16-19.

Distribution: India: This species occurs in India (the Ganga-Brahmaputra drainage) and Odisha.

Paschim Medinipur: During the present study the species has been found in Narayangarh, Sabong blocks of Paschim Medinipur.

Elsewhere: Bangladesh and Myanmar.

Subfamily Labeoninae

Genus *Osteochilichthys* Hora, 1942

***Osteochilichthys thomassi* (Day, 1877)**

Local name: Punti



Fig.14

Diagnosis of the species (Fig. 14): Body deep and slightly compressed with depth of 2.8-3 times in SL. Snout obtuse with large pore. Mouth inferior, lower jaw anteriorly with horny covering. Lips are continuous and fleshy. A line of pores continued under the eye. Barbels absent, lateral line with about 38-39 scales. Dorsal fin with a dark band and caudal fin's outer edge is dark.

Distribution: India: It has been found in India

(Andhra Pradesh, Karnataka, Kerala, Tamil Nadu), Western Ghats of Karnataka. .

Paschim Medinipur: During the present study the species has been found in Binpur-II block of Paschim Medinipur.

Genus *Labeo* Cuvier, 1816

***Labeo calbasu* (Hamilton, 1822)**

Local name: Kalbosh/Kalus



Fig.15

Diagnosis of the species (Fig. 15): Body stout, dorsal portion is more convex than ventral portion. Mouth is inferior, lips thick and fleshy. Two pairs of barbels, maxillary pair shorter than rostral pair. Eyes are moderate, wide and inferior. Caudal fin deeply forked. Dorsal fin inserted in the middle between tip of snout and base of caudal fin. Lateral line well marked with 40-45 scales. Color dark black but ventral portion is light black. Fin formula- D iii-iv 13-15; P 16-18; V i 8; A 7-8.

Distribution: India: It has been found in India (Present in Bhimtal and Naukuchiatal lakes, Buxa, Adma and Jayanti rivers, Tungabhadra River, Tambraparani river system, Chalakkudy river system and Nilgiri Biosphere reserve, Tripura).

Paschim Medinipur: During the present study the species has been found in all blocks of Paschim Medinipur.

Elsewhere: Pakistan, Bangladesh, Myanmar, Nepal, Thailand and South Western China.

***Labeo rohita* (Hamilton, 1822)**

Local name: Rhue



Fig.16

Diagnosis of the species (Fig. 16): Body bilaterally symmetrical, moderately elongate, its dorsal profile more arched than the ventral profile; body with cycloid scales, head without scale; snout fairly depressed, projecting beyond mouth, without lateral lobe; eyes dorsolateral in position, not visible from outside of head; mouth small and inferior; lips thick and fringed with a distinct inner fold to each lip, lobate or entire; a pair of small maxillary barbells concealed in lateral groove; no teeth on jaws; pharyngeal teeth in three rows; upper jaw not extending to front edge of eye; simple (unbranched) dorsal fin rays three or four, branched dorsal fin rays 12 to 14; dorsal fin inserted midway between snout tip and base of caudal fin; pectoral and pelvic fins laterally inserted; pectoral fin devoid of an osseous spine; caudal fin deeply forked; lower lip usually joined to isthmus by a narrow or broad bridge; pre-dorsal scale 12-16; lateral line distinct, complete and running along median line of the caudal peduncle; lateral line scales 40 to 44; lateral transverse scale-rows six or six and a half

between lateral line and pelvic fin base; snout not truncate, without any lateral lobe; colour bluish on back, silvery on flanks and belly. Fin formula: D. 15-16(3/12-13); P₁. 16-17; P₂. 9; A. 7 (2/5).

Distribution: India: It has been found in India (Present in Bhimtal and Naukuchiatal lakes, Buxa, Adma and Jayanti rivers, Tungabhadra River, Tambraparani river system, Chalakkudy river system and Nilgiri Biosphere reserve, Tripura).

Paschim Medinipur: During the present study the species has been found in all blocks of Paschim Medinipur.

Elsewhere: Pakistan, Bangladesh, Myanmar, Nepal, Thailand and South Western China.

***Labeo bata*(Hamilton, 1822)**

Local name: Bata



Fig.17

Diagnosis of the species (Fig. 17): Snout slightly projecting beyond mouth, often studded with pores. Mouth inferior, lips very thin, lower lips slightly fringed with inner cartilaginous covering. A pair of minute maxillary barbell present. Dorsal fin inserted close to snout tip than to caudal-fin base, with ii-iv, 9-10 rays. Scales moderate in size, lateral line with 37-40 scales; body colour is silvery white. Fin formula: D. 11 (2/9); P₁. 16-17; P₂. 9 (1/8); A. 7 (2/5).

Distribution: India: It has been found in India

(Present in Bhimtal and Naukuchiatal lakes, Buxa, Adma and Jayanti rivers, Tungabhadra River, Tambraparani river system, Chalakkudy river system and Nilgiri Biosphere reserve, Tripura).

Paschim Medinipur: During the present study the species has been found in all blocks of Paschim Medinipur.

Elsewhere: Pakistan, Bangladesh, Myanmar, Nepal, Thailand and South Western China.

Genus *Catla* Valenciennes, 1844

***Catla catla* (Hamilton, 1822)**

Local name: Catla/ Catal



Fig.18

Diagnosis of the species (Fig. 18): Body short and deep, somewhat laterally compressed, its depth more than head length; head very large, its depth exceeding half the head length; body with conspicuously large cycloid scales, head devoid of scales; snout bluntly rounded; eyes large and visible from underside of the head; mouth wide and upturned with prominent protruding lower jaw; upper lip absent, lower lip very thick; no barbells; lower jaw with a movable articulation at symphysis, without a prominent process; gill rakers long and fine;

pharyngeal teeth in three row, 5.3.2/2.3.5 pattern; dorsal fin inserted slightly in advance of pelvic fins, with 14 to 16 branched rays, the simple rays non-osseous; anal fin short; pectoral fins long extending to pelvic fins; caudal fin forked; lateral line with 40 to 43 scales. Greyish on back and flanks, silvery-white below; fins dusky gray. D. 2/15-16; P₁. 18-20; P₂. 9; A. 3/5.

Distribution: India: It has been found in India (Present in Bhimtal and Naukuchiatal lakes, Buxa, Adma and Jayanti rivers, Tungabhadra River, Tambraparani river system, Chalakkudy river system and Nilgiri Biosphere reserve, Tripura).

Paschim Medinipur: During the present study the species has been found in all blocks of Paschim Medinipur.

Elsewhere: Pakistan, Bangladesh, Myanmar, Nepal, Thailand and South Western China.

Genus *Cirrhinus* Oken, 1817

***Cirrhinus mrigala* (Hamilton, 1822)**

Local name: Mrigal



Fig.19

Diagnosis of the species (Fig. 19): Body bilaterally symmetrical and streamlined, its depth about equal to length of head; body with cycloid scales, head without scales; snout blunt, often with pores; mouth broad, transverse; upper lip entire and not continuous with lower lip, lower lip most indistinct; single pair of short

rostral barbells; pharyngeal teeth in three rows, 5.4.2/2.4.5 pattern; lower jaw with a small post-symphysial knob or tubercle; origin of dorsal fin nearer to end of snout than base of caudal; dorsal fin as high as body with 12 or 13 branched rays; last unbranched ray of dorsal fin non-osseous and non-serrated; pectoral fins shorter than head; caudal fin deeply forked; anal fin not extending to caudal fin; lateral line with 40-45 scales; lateral transverse scale rows 6-7/5½-6 between lateral line and pelvic fin base; usually dark grey above, silvery beneath; dorsal fin greyish; pectoral, pelvic and anal fins orange-tipped (especially during breeding season). Fin formula: D. 16; P₁. 17; P₂. 9; A. 8.

Distribution: India: It has been found in India (Present in Bhimtal and Naukuchiatal lakes, Buxa, Adma and Jayanti Rivers, Tungabhadra River, Tambraparani river system, Chalakkudy river system and Nilgiri Biosphere reserve, Tripura).

Paschim Medinipur: During the present study the species has been found in all blocks of Paschim Medinipur.

Elsewhere: Pakistan, Bangladesh, Myanmar, Nepal, Thailand and South Western China.

***Cirrhinus reba* (Hamilton, 1822)**

Local name: Bata



Fig.20

Diagnosis of the species (Fig. 20): Body bilaterally symmetrical and streamlined, its depth about equal to length of head; snout blunt, often with pores; mouth broad, transverse; mouth inferior and a pair of rostral barbels. body with cycloid scales, head without scales. Silver body color. Scales are darkest at their upper and lower edges. Head 23.9% SL and 19.1% TL. Height 26.6% SL and 21.3% TL. Eye 24.4% HL. Lateral line present and complete with about 36-38 scales. Feed on Plankton, detritus, vegetables, crustaceans and insect larvae

Fin formula: D. 10-11 (2-3/8); P1. 16-17; P2. 9; A. 8(3/5).

Distribution: India: It has been found in India (West Bengal, Behar, Jharkhand, Odisha, Assam).

Paschim Medinipur: During the present study the species has been found in river Kangsaboty in Midnapur sadar block.

Elsewhere: Pakistan, Bangladesh, Myanmar, Nepal.

Subfamily Cyprininae

Genus *Osteobrama* Heckel, 1843

Osteobrama cotio cotio (Hamilton, 1822)

Local name: Chuna mourala

Diagnosis of the species (Fig. 21): Body deeply compressed. Mouth is small without barbells. Upper jaw is slightly longer than lower jaw. Body is silvery with greyish in back. Lateral

line complete with 58-68 scales. Head 35.7% SL, Height 42.9% SL, Eye 24% HL. Fin formula – D ii 8-9; P i 13-14; V i 8-9; A iii 26-38.



Fig.21

Distribution: India: It has been widely distributed in India (Assam, Bihar, Madhya Pradesh, Manipur, Punjab, Uttaranchal, and West Bengal).

Paschim Medinipur: During the present study the species has been found in Debra, Chandrakona II, Binpur II, Gopiballavpur I, Gopiballavpur II, Chandrakona I, Keshiary, blocks of Paschim Medinipur.

Elsewhere: Bangladesh, Pakistan, Nepal and Bangladesh.

Remarks: According to Talwar, P.K. and A.G. Jhingran (1991) in *Osteobrama cotio cotio* (Hamilton, 1822) lateral line complete with about 65 scales and anal fin with 33-38 branched ray. During the present study, it has been observed that lateral line completed with 58-68 scales and anal fin with 26-38 branched rays.

**Genus *Pethia* Pethiyagoda,
Meegaskumbura & Maduwage, 2012**

***Pethia ticto* (Hamilton, 1822)**

Local name: Titpunti



Fig.22

Diagnosis of the species (Fig. 22): Mouth small and terminal. Barbels absent. Dorsal fin inserted slightly posterior to pelvic fin origin. Lateral line scales generally incomplete with 23-25 scales in longitudinal series. A long transverse blotch present in the above of pectoral fin and second blotch present in the above of anal fin end. Fin formula- D iii-iv 8; P 13-15; V i 8; A ii-iii 5.

Distribution: India: It has been found in India (Karnataka, Kerala, Tamil Nadu).

Paschim Medinipur: During the present study the species has been found in Gopiballavpur I, Gopiballavpur II block of Paschim Medinipur.

Elsewhere: Pakistan, Nepal, Sri Lanka, Bangladesh, Myanmar and Thailand.

Genus *Puntius* Hamilton, 1822

***Puntius chola* (Hamilton-Buchanan, 1822)**

Local name: Chola punti



Fig.23

Diagnosis of Species (Fig-23): Body deep and compressed. The head is small, and narrower than the body. At each corner of the mouth is a tendril. The mouth is small, and descends obliquely. Maxillary barbells are one pair. Lateral line is complete with a slight curve from the shoulder with 24-28 scales, Pre-dorsal scales 10 to 12, circumpeduncular scales 14, pre-pelvic scales 11, pre-anal scales 19; total length: 5-12cm. Fin formula- D iii 8; P i 14; V i 8; A ii 5.

Distribution: India: It has been found in India (Karnataka, Kerala, Odisha, Tamil Nadu).

Paschim Medinipur: During the present study the species has been found in Gopiballavpur I, Gopiballavpur II, and Salboni block of Paschim Medinipur.

Elsewhere : Pakistan, Nepal, Sri Lanka, Bangladesh, Myanmar and Thailand.

***Puntius conchoni* (Hamilton-Buchanan, 1822)**

Local name: Punt



Fig.24

Diagnosis of Species (Fig-24): Body deep and compressed, its depth 2.2 to 2.5 times in standard length. Head is 4.1 to 4.5 times in standard length. Mouth is moderate; no barbless. Dorsal fin inserted equidistant between tip of snout and base of caudal fin; its last unbranched ray osseous, moderately strong and serrated. Scales medium; lateral line incomplete, ceases after 10th to 13th scales, 24 to 26 scales in longitudinal series, total length: 5.5-9cm.

Distribution: India: It has been found in India (Karnataka, Kerala, Tamil Nadu, Andhra Pradesh, and West Bengal).

Paschim Medinipur: During the present study the species has been found in Gopiballavpur I, Gopiballavpur II, Debra block of Paschim Medinipur.

Elsewhere: Pakistan, Nepal, Sri Lanka, Bangladesh, Myanmar and Thailand.

***Puntius terio* (Hamilton-Buchanan,1822)**

Local name: Titpunti



Fig.25

Diagnosis of Species (Fig-25): Body elongate, deep and compressed. Body depth is 2.4 times in standard length. Head length is 3.3-3.8 times in standard length. Eye diameter is 2.75- 3 times of head length. Barbells are absent. Lateral line incomplete with 22-23 scales in longitudinal series. Over anal fin a large blotch present. Dorsal fin has numerous dark spots and streaks. Body colour in dorsal side is metallic green and in ventral side is whitish with light reddish, total length: 5-8cm.

Fin formula- D iii 8; P 14-15; V 9; A 7-8.

***Puntius gelius* (Hamilton-Buchanan,1822)**

Local name: chuna



Fig.26

Diagnosis of Species (Fig-26): Elongate, body moderately compressed. Mouth small, slightly oblique with no barbells and upper jaw slightly longer. Last unbranched ray of dorsal fin is osseous and serrated. Dorsal fin originates nearer to snout tip than the caudal base. Pelvic fins originate below that of dorsal and pectoral as long as head excluding snout. Scales are fairly small and lateral line incomplete, total length: 2.5-4cm.

Fin formula: D ii-iii 8; P i 14; V i 8; A iii 5

Distribution: India: It has been found in India (Karnataka, Kerala, Tamil Nadu, Andhra Pradesh, and West Bengal).

Paschim Medinipur: During the present study the species has been found in Gopiballavpur I, Gopiballavpur II, Sabang, and Debra block of Paschim Medinipur.

Elsewhere: Pakistan, Nepal, Sri Lanka, Bangladesh, Myanmar and Thailand.

***Puntius guganio* (Hamilton-Buchanan,1822)**

Local name: Mola punti



Fig.27

Diagnosis of Species (Fig-27): Body elongate, eyes large, mouth terminal, no barbells, scale small. Lateral line is incomplete, 34-36 scales in longitudinal series. Body light greenish with

a silvery band, a small black spot at base of anterior dorsal fin rays, total length: 4-6cm.

Fin formula: D iii 8; P i 10; V i 8; A ii 5

Distribution: India: It has been found in India (Karnataka, Kerala, Tamil Nadu, Andhra Pradesh, and West Bengal).

Paschim Medinipur: During the present study the species has been found in Gopiballavpur I, Gopiballavpur II, Sabang and Debra block of Paschim Medinipur.

Elsewhere: Pakistan, Nepal, Sri Lanka, Bangladesh, Myanmar and Thailand.

***Puntius phutunio* (Hamilton-Buchanan,1822)**

Local name: Punti



Fig.28

Diagnosis of Species (Fig-28): Body somewhat deep, eyes large, mouth small, no barbells. Scale large, lateral line incomplete, 18 to 24 scales in longitudinal series. Presence of three black blotches, one is behind gill-cover, second above anal fin and third as a spot on caudal peduncle, total length: 2.5-4cm.

Fin formula- D ii-iii 8; P i 14; V i 8; A iii 5

Distribution: India: It has been found in India (Karnataka, Kerala, Tamil Nadu, Andhra Pradesh, and West Bengal).

Paschim Medinipur: During the present study

the species has been found in Gopiballavpur I, Gopiballavpur II, Sabang and Debra block of Paschim Medinipur.

Elsewhere: Pakistan, Nepal, Sri Lanka, Bangladesh, Myanmar and Thailand.

***Puntius sarana* (Hamilton-Buchanan, 1822)**

Local name: Sarpunti

Diagnosis of Species (Fig-29): Body elongate, eyes moderate, mouth moderate, two pairs of barbells. Scale medium, lateral line complete with 29 to 34 scales. Body colour is black olive silvery without any black spot, total length: 8-15cm.

Fin formula: D iii-iv 8; A iii 5; P i 14-17; v i 8



Fig.29

Distribution: India: It has been found in India (Karnataka, Kerala, Tamil Nadu, Andhra Pradesh, and West Bengal).

Paschim Medinipur: During the present study the species has been found in Gopiballavpur I, Gopiballavpur II, Sabang, Ghantal, Daspur, Midnapur Sadar and Debra block of Paschim Medinipur.

Elsewhere: Pakistan, Nepal, Sri Lanka,

Bangladesh, Myanmar and Thailand.

***Puntius sophore* (Hamilton-Buchanan, 1822)**

Local name: Lalpunti



Fig.30

Diagnosis of Species (Fig-30): Body deep and moderately compressed. Dorsal portion is more convex than ventral portion. Mouth is small and terminal. Upper jaw slightly longer than lower jaw. Barbells are absent. Pelvic fin originated behind the origin of dorsal fin. Lateral line complete with 22- 27 scales, total length: 7-13cm.

Fin formula- D iii-iv 8-9; P i 14-17; V i 7-8; A iii 5.

Distribution: India: It has been found in India (Karnataka, Kerala, Tamil Nadu, Andhra Pradesh, and West Bengal).

Paschim Medinipur: During the present study the species has been found in Gopiballavpur I, Gopiballavpur II, Sabang Datan, Belda, Mohanpur and Debra block of Paschim Medinipur.

Elsewhere: Pakistan, Nepal, Sri Lanka, Bangladesh, Myanmar and Thailand.

Family Cobitidae Swainson, 1838

Genus *Botia* J.E.Gray, 1831

Botia almorhae (Gray,1831)

Local name: Ruti manch



Fig.31

Diagnosis of the species (Fig. 31): Body elongate, head length about 4.2-4.5 Times in SL. Mouth small, barbells four pairs. Dorsal fin inserted nearer to caudal fin base. Body with Y shaped black mark on yellow background. Fin formula- D 11-12; P 14; V i 7, A ii 5-6.

Distribution: India: It has been found in India (Bihar, Rajasthan, Uttaranchal, and Uttar Pradesh).

Paschim Medinipur: During the present study the species has been found in Gopiballavpur I, Gopiballavpur II blocks of Paschim Medinipur.

Elsewhere: Nepal, Myanmar.

Genus *Lepidocephalichthys* Bleeker, 1863

Lepidocephalichthys guntea (Hamilton, 1822)

Local name: Ruti manch/ Gunti manch



Fig.32

Diagnosis of the species (Fig. 32): Body is elongated and slightly compressed. Dorsal and ventral portion are nearly parallel. Caudal fin rounded with some bands. A dark band extends from snout to caudal base. Patches of scales below and behind eyes. Lateral line is absent. A black ocellus present on the upper half of the body. Dorsal and caudal fin is with spots. Pectoral fin has an osseous spine in males. Fin formula- D 8-10; P 7-9; V 7-8; A 7.

Distribution: India: It has been found in India (Arunachal Pradesh, Assam, Bihar, Darjiling, Himachal Pradesh, Jharkand, Manipur, Meghalaya, Mizoram, Nagaland, Odisha, Punjab, Sikkim, Tripura, Uttaranchal, Uttar Pradesh, and West Bengal).

Paschim Medinipur: During the present study the species has been found in all blocks of Paschim Medinipur.

Elsewhere: Myanmar; Nepal, Bangladesh, Nepal, Myanmar and Thailand.

Lepidocephalichthys manipurensis
Arunkumar, 2000

Local name: Ruti/ gunti manch



Fig.33

Diagnosis of the species(Fig. 33): No scales on the vertex of head. One dark black stripe is present from the tip of the snout to the eye; mid-lateral line with 8 - 11 spots. A small, sharp black spot just above the upper base of the caudal fin is present. 8 - 9 dorsal short, ashy brown bars from occiput to the base of the caudal fin; forked caudal fin with 4 - 5 W-shaped bands. Pectoral, ventral and anal fins are with stripes or spots. Least depth of caudal peduncle 50 - 60.24% of its total length and 7.69 - 8.11% of SL.

Distribution: India: It has been found in Manipur (India).

Paschim Medinipur: In present study the species was found in Binpur I, Garbeta III blocks

of Paschim Medinipur.

Elsewhere: Myanmar at Moreh, Chandel district.

Lepidocephalichthys thermalis
(Valenciennes, 1846)

Local name: Ruti/gunti manch



Fig.34

Diagnosis of the species(Fig. 34): Body elongate and slightly compressed posteriorly. Mouth inferior, barbells three pairs. Dorsal fin inserted slightly anterior to pelvic fin. Caudal fin almost truncate. Scales are very small. 8-10 dark blotches present on the body. A small black spot present on the upper half of the caudal fin. Fin formula- D 8-9; P 7-8; V 7; A 7-8.

Distribution: India: It has been found in India (Karnataka, Kerala, Maharashtra, and Tamil Nadu).

Paschim Medinipur: During the present study the species has been found in Gopiballavpur I, Gopiballavpur II blocks of Paschim Medinipur.

Elsewhere: Sri Lanka.

Order Siluriformes G.Cuvier, 1817

Family Amblycipitidae Day, 1873

Genus *Amblyiceps* Blyth, 1858

***Amblyiceps mangois* (Hamilton, 1822)**

Local name: Baligar manch/Gang Magur



Fig. 35

Diagnosis of the species (Fig. 35): Body long & slender with broad and depressed head. Mouth is with four pairs of barbells. It differs from other species *A. mucronatum*, *A. murraystuarti*, *A. platycephalus*, *A. foratum* and *A. variegatum* in having a relatively short body with 34-36 (versus 38-40) vertebrae, and a caudal fin with upper and lower lobes of distinctly different shapes (versus truncate caudal fin in *A. murraystuarti* and with both lobes similar in shape in other Indochinese species). Pectoral spine smooth. Body color is light brown. Fin formula: DI 5-6; P I 7; V i 5-6; A ii-iii 6-7.

Distribution: India: It has been found in India (Arunachal Pradesh, Assam, Bihar, Himachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Tripura, Uttar Pradesh, West

Bengal).

Paschim Medinipur: During the present study the species has been found in Garbeta III blocks of Paschim Medinipur.

Elsewhere: Nepal; Bangladesh.

Family Bagridae Bleeker, 1858

Genus *Mystus* Scopoli, 1777

***Mystus bleekeri* (Day, 1877)**

Local name: Tangra



Fig.36

Diagnosis of the species (Fig. 36): Body compressed. Body depth is 3.8 to 4.2 times in SL. Mouth terminal. Barbels are four pair maxillary pair reaches beyond the base of anal fin. Median longitudinal groove reach the base of occipital process. Eye diameter is 4- 4.5 times in HL. Adipose fin is long and inserted just after rayd dorsal fin. Humeral spots boldly present. D I 7-8; P I 9-10; V i 5; A iii 6-7.

Distribution: India: It has been found in India (Arunachal Pradesh, Assam, Bihar, Chattisgarh, Delhi, Haryana, Himachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Orissa, Tripura, Uttar Pradesh, and West Bengal).

Paschim Medinipur: During the present study the species has been found in Pingla, Debra blocks of Paschim Medinipur.

Elsewhere: Nepal; Pakistan; Bangladesh.

Mystus cavasius (Hamilton, 1822)

Local name: Tangra



Fig.37

Diagnosis of the species (Fig. 37): Body elongate and compressed. Occipital process is narrow. Maxillary barbels in adults extend posteriorly beyond the caudal fin base. In young specimen, do not extend beyond the anal fin. Dorsal spine weak, often feebly serrated. Color is grayish with a more or less well-defined midlateral longitudinal stripe. A dark spot emphasized by a pale area along its ventral margin is just anterior to the first dorsal spine. Dorsal, adipose and caudal fins shaded with melanophores. Fin formula-D I 7; P I 8; V i 5; A 10-11.

Distribution: India: It has been found in India (Assam, Bihar, Chattisgarh, Delhi, Haryana, Himachal Pradesh, Jharkand, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Mizoram, Nagaland, Orissa, Punjab, Rajasthan, Tripura, Uttaranchal, Uttar Pradesh, and West Bengal).

Paschim Medinipur: During the present study the species has been found in Pingla, Debra, Binpur II, Garbeta I, Gopiballavpur I, Gopiballavpur II, Jhargram blocks of Paschim Medinipur.

Elsewhere: Nepal; Bangladesh.

Mystus vittatus (Bloch, 1794)

Local name: Ganthia Tangra



Fig.38

Diagnosis of the species (Fig. 38): Body elongate and compressed. Body depth is 3.8-4.2 times in SL. Median longitudinal groove of head reaching base of occipital process. Eye diameter 4.5- 6 times in head length. Barbels four pairs, from which maxillary pair reach beyond the pelvic fin, sometimes it reaches the anal fin. Dorsal fin with a weak spine which is serrated on its inner edge. Adipose fin inserted between the dorsal fin and anal fin. Body with grey silver color. Fin formula-D I 7; P I 9; V i 5; A 9-12.

Distribution: India: It has been found in India (Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chandigarh, Chattisgarh, Dadra-Nagar-Haveli, Daman, Delhi, Diu, Goa, Gujarat, Haryana, Himachal Pradesh, Jharkand, Karaikal, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Mizoram, Nagaland, Odisha, Pondicherry, Punjab, Rajasthan, Tamil Nadu, Tripura, Uttaranchal, Uttar Pradesh, West Bengal).

Paschim Medinipur: During the present study the species has been found in Sankrail,

Gopiballavpur I, Gopiballavpur II blocks of Paschim Medinipur.

Elsewhere: Nepal; Pakistan; Sri Lanka; Bangladesh.

Mystus tengara (Hamilton, 1822)

Local name: Tangra



Fig.39

Diagnosis of the species (Fig. 39): Body elongated and slightly compressed. Head depressed with terminal mouth. Barbels are four pairs. Dorsal spine is long upto head. Pectoral spines are stronger than dorsal spine with 1-13 denticulation. Pectoral spine is defensive organ and when the injury occurred it is very painful. Inside 4-5 longitudinal bands present. Adipose fin is short. Upper lobe of caudal fin is longer. Body colour is brown or yellow, with a dark spot on the shoulder. Fin formula-D I 7; P I 8; V i 5; A 10-13; C-19.

Distribution :India: Arunachal Pradesh, Assam, Bihar, Chandigarh, Chattisgarh, Darjiling, Delhi, Haryana, Himachal Pradesh, Jharkand, Manipur, Meghalaya, Mizoram, Nagaland, Punjab, Sikkim, Tripura, Uttaranchal, Uttar Pradesh, West Bengal.

Paschim Medinipur: During the present study the species has been found in Sankrail, Gopiballavpur I, Gopiballavpur II blocks of Paschim Medinipur.

Elsewhere: Bangladesh, Pakistan, Nepal, Afghanistan.

Mystus gulio (Hamilton, 1822)

Local name: Sanna Tangra



Fig.40

Diagnosis of the species (Fig. 40): Body elongated and slightly compressed. Head depressed with terminal mouth. Barbels four pairs. Dorsal spine is long upto head. Pectoral spines are stronger than dorsal spine with 1-13 denticulation. Pectoral spine is defensive organ and when the injury occurred it is very painful. Inside 4-5 longitudinal bands present. Adipose fin is short. Upper lobe of caudal fin is longer. Body colour is brown or yellow, with a dark spot on the shoulder. Fin formula-D I 7; P I 8; V i 5; A 10-13; C-19.

Distribution :India: Arunachal Pradesh, Assam, Bihar, Chandigarh, Chattisgarh, Darjiling, Delhi, Haryana, Himachal Pradesh, Jharkand, Manipur, Meghalaya, Mizoram, Nagaland, Punjab, Sikkim, Tripura, Uttaranchal, Uttar Pradesh, West Bengal.

Paschim Medinipur: During the present study the species has been found in Sankrail, Gopiballavpur I, Gopiballavpur II blocks of Paschim Medinipur.

Elsewhere: Bangladesh, Pakistan, Nepal, Afghanistan.

Genus *Sperata* Holly, 1939
***Sperata aor* (Hamilton, 1822)**
Local name: Aor



Fig.41

Diagnosis of the species (Fig. 41): Body elongate and compressed. Snout rounded on dorsal portion. Width of mouth is less than $\frac{1}{2}$ of head length. Body depth is 4-5.2 times in SL. Barbels four pairs, maxillary pair are very long extend to the base of caudal fin. Dorsal fin serrated on its posterior edge. Adipose fin is very long about two times in rayed dorsal fin. Gill rakers number is 19-20. Fin Formula is: D I 7; P 10-11; V I 5; A iii-iv 8-10.

Distribution: India: It has been found in India (northern India to southern India).

Paschim Medinipur: During the present study the species has been found in Garbeta I blocks of Paschim Medinipur.

Elsewhere: Bangladesh; Myanmar; Nepal; Pakistan.

Family Clariidae Bonaparte, 1846
Genus *Clarias* Scopoli, 1777
***Clarias batrachus* (Linnaeus, 1758)**
Local name: Magur



Fig.42

Diagnosis of the species (Fig. 42): Dorsal spines 0; dorsal soft rays 60-76; anal soft rays 47 - 58. Body compressed posteriorly. Upper jaw is a little projecting. Spines of pectoral fin are rough on its outer edge and serrated on its inner edge. Occipital process more or less triangular, its length about 2 times in its width, distance between dorsal and occipital process 4-5.5 times in distance from tip of snout to end of occipital process. Genital papilla in males is elongated and pointed.

Distribution: India: It has been found in India (Uttaranchal, Uttar Pradesh).

Paschim Medinipur: During the present study the species has been found in Sabong, Jhargram blocks of Paschim Medinipur.

Elsewhere: Bangladesh; Cambodia; China; Indonesia; Japan; Lao People's Democratic Republic; Malaysia ; Myanmar; Nepal; Pakistan; Philippines; Singapore; Sri Lanka; Thailand; Viet Nam.

Family Heteropneustidae Hora, 1936

Genus *Heteropneustes* Müller, 1840

***Heteropneustes fossilis* (Bloch, 1794)**

Local name: Singhi



Fig.43

Diagnosis of the species (Fig. 43): Dorsal spines 0; dorsal soft rays 6-7; anal soft rays 60-79. Body compressed posteriorly. Head length is 13.65 % SL. Upper jaw is a little projection. Spine of pectoral fins rough and serrated on its inner edge. Occipital process more or less triangular, its length about 2 times in its width, distance between dorsal and occipital process 3-4 times in distance from tip of snout to end of occipital process. Caudal fin rays 19.

Distribution: India: It has been found in India (Andaman Is., Bihar, Darjiling, Uttaranchal, Uttar Pradesh, and West Bengal).

Paschim Medinipur: During the present study the species has been found in Gopiballavpur I,

Gopiballavpur II, and Jhargram blocks of Paschim Medinipur.

Elsewhere: Lao People's Democratic Republic; Myanmar; Nepal; Pakistan; Sri Lanka; Thailand; Bangladesh.

Family Schilbeidae Steyskal, 1980

Genus *Neotropius* (Swainson, 1838)

***Neotropius atherinoides* (Bloch, 1794)**

Local name: Chuna Tangra



Fig.44

Diagnosis of the species (Fig. 44): Body elongated and compressed. Lower jaw is slightly shorter than upper jaw. Eyes are large. Barbels are four pairs. Dorsal spine is serrated on its outer edge. Pectoral fin long, extend beyond pelvic fin base. Anal fin with 33-41 rays. Three or four bands present on the body. Body is whitish with light greenish in back. Lateral line is complete. Posterior portion of body bend at downward. Fin formula is - D I 5-6; P I 6-7; V 6; A 33-41.

Distribution: India: It has been found in India (Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chandigarh, Chattisgarh, Darjiling, Delhi, Gujarat, Haryana, Himachal Pradesh,

Jammu-Kashmir, Jharkand, Karaikal, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Mizoram, Nagaland, Orissa, Pondicherry, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttaranchal, Uttar Pradesh, and West Bengal).

Paschim Medinipur: During the present study the species has been found in Debra blocks of Paschim Medinipur.

Elsewhere: Nepal; Pakistan; Bangladesh.

Family Siluridae G.Cuvier, 1816

Genus *Ompok* Lacépède, 1803

***Ompok pabo* (Hamilton, 1822)**

Local name: Pabda



Fig.45

Diagnosis of the species (Fig. 45): Body elongate and compressed. Lower edge of eye is below the level of mouth cleft. Mouth is oblique. Teeth are villiform bands on jaws. Transverse patches present on teeth. Barbels are two pairs; maxillary barbels are short than head length extends beyond of posterior border of eye. Mandibular barbells are very minute, about equal to eye diameter. Anal fin long, inserted behind of dorsal fin. Serration on pectoral fin is feeble. Caudal fin deeply forked with pointed edge. Fin formula- D 5; P 14-15; V 9-10; A 50-75.

Distribution:India: Northeast India.

Paschim Medinipur: During the present study the species has been found in Midnapur and Mohanpur Blocks of Paschim Medinipur.

Elsewhere: Bangladesh and Myanmar, Pakistan.

Genus *Wallago* Bleeker, 1851

***Wallago attu* (Bloch & Schneider, 1801)**

Local name: Boal/Balia



Fig.46

Diagnosis of the species (Fig. 46): Head broad, snout depressed. Body is elongate, strongly compressed. Mouth is very deeply cleft, its corner reaching far behind eyes. Teeth in jaws set in wide bands; vomerine teeth in two small patches. Barbels are two pairs; maxillary barbels extending to anterior margin posterior of anal fin, mandibular barbels to angle of mouth. Eyes are small, with a free orbital margin. Dorsal fin is small, anal fin very long. Mandibular barbel longer than pelvic fin; 24-30 gill rakers on the first arch. Eye in front of vertical through corner of mouth. Fin formula D 5; A 77-92.

Distribution: India: It has been found in India (Kerala, Maharashtra, Bhavanisagar, Tamil Nadu, West Bengal, Bihar, East Punjab, Assam and Orissa, Tripura).

Paschim Medinipur: During the present study the species has been found in Pingla, Debra, Sankrail, Jhargram, and Sabong blocks of

Paschim Medinipur.

Elsewhere: Bangladesh; Indonesia; Myanmar; Nepal; Pakistan; Sri Lanka; Thailand; Vietnam.

Family Sisoridae Bleeker, 1858

Genus *Bagarius* Bleeker, 1854

***Bagarius bagarius* (Hamilton, 1822)**

Local name: Not available



Fig.47

Diagnosis of the species (Fig.47): Pelvic-fin origin in front of the base of the last dorsal ray; adipose-fin origin behind the anal-fin origin. Elongate neural spines 4-8, distally expanded abdominal vertebrae 17-20. Absence of sharp ridges on top of head and absence of bumps on dorsal mid-line, behind dorsal fin base. Mouth is large, inferior and arciform. Fin formula D I iv; A 13-14.

Distribution: India: It has been found in India (Found in Ganges River and its tributaries, Orissa, Maharastra, and Tripura).

Paschim Medinipur: During the present study the species has been found in Binpur I, Gopiballavpur I, Gopiballavpur II blocks of Paschim Medinipur.

Elsewhere: Bangladesh; Bhutan; Nepal.

Family Pangasidae Bleeker, 1858

Genus *Pangasius* Valenciennes, 1840

***Pangasius pangasius* (Hamilton, 1822)**

Local name: Pangas



Fig.48

Diagnosis of the species (Fig. 48): Body is elongated and laterally compressed. Upper surface of head is unpolished and snout obtusely rounded. Upper jaw is longer than lower jaw and mouth gape moderate. Two pairs of barbells present. Dorsal spine serrated anteriorly, pectoral spine comparatively strong than dorsal spine and serrated internally. Caudal fin deeply forked. Lateral line is complete. Colour on abdomen silvery, side of head contains golden tinge, above the lateral line whitish grey, silvery purple on flanks and yellowish green/ darken on back. Fin formula: D 7-8; P 13; V 6; A iii-v/ 26-29.

Distribution: India: Arunachal Pradesh, Assam, Bihar, Meghalaya, Orissa, Tamil Nadu, and West Bengal.

Paschim Medinipur: During the present study the species has been found in Sabang block of Paschim Medinipur.

Elsewhere: Bangladesh; Myanmar (Myanmar (mainland)); Nepal; Pakistan.

Order Belontiiformes L. S. Berg, 1940

Family Belontiidae Bonaparte, 1832

Genus *Xenentodon* Regan, 1911

***Xenentodon cancila* (Hamilton, 1822)**

Local name: Gang tur



Fig.49

Diagnosis of the species (Fig. 49): Body very elongate and slightly compressed. Eyes are small. Operculum is 1.7-2 times in cheek. Dorsal fin inserted usually anterior to a vertical through the origin of the anal fin. Green-silvery dorsally, grading to whitish below. A silvery band with a dark margin run along the side; a series of four or five blotches (absent in young specimens) on sides between the pectoral and anal fins. Dorsal and anal fins are with dark edges. Caudal fin is truncate. Fin formula- D 15-18; P 11; V 6; A 16-18.

Distribution: India: It has been found in India (Arunachal Pradesh, Assam, Bihar, Meghalaya, Nagaland, Orissa, Tripura, and Uttaranchal).

Paschim Medinipur: During the present study the species has been found in Sabong, Debra, Binpur I, Gopiballavpur I, Gopiballavpur II, Keshiary, Narayangarh blocks of Paschim

Medinipur.

Elsewhere: Myanmar; Nepal; Pakistan; Sri Lanka; Thailand; Bangladesh.

Family Adrianichthyidae Weber, 1913

Sub-family Oryziinae Myers, 1938

Genus *Oryzias* Jordan & Snyder, 1906

***Oryzias dancena* (Hamilton, 1822)**

Local name: Dhanful mach



Fig.50

Diagnosis of the species (Fig. 50): Body somewhat elongate & strongly compressed, semitransparent with green on back becoming silvery on belly, several dark blotches on flanks; eye large, about 3 times in head length, bluish fluorescence shows around eyes during dark. Anal fin rays are prolonged & filiform, caudal fin rounded.

Fin formula: D 6-7; A 20-24; P 15; V 6

Distribution:

India: Tamil Nadu, Andhra Pradesh, Odisha and West Bengal.

Paschim Medinipur: Sabang, Pingla, Ghatal, Debra, Daspur and Midnapur Sadar block

Elsewhere: Bangladesh, Sri Lanka, Myanmar and Thailand.

Order Cyprinodontiformes L. S. Berg, 1940

Family Aplocheilidae Bleeker, 1860

Genus *Aplocheilus* McClelland, 1839

***Aplocheilus panchax* (Hamilton, 1822)**

Local name: Techoka



Fig.51

Diagnosis of the species (Fig. 51): Body elongated and compressed posteriorly. Eyes are large its diameter about 3.3 times in head length. Mouth is terminal and teeth villiform. Anal fin almost square shaped. Pelvic fins are small. Caudal fin rounded. Fin formula- D ii 6; P 14; V 6; A iii12-13.

Distribution: India: It has been found in India (Maharashtra, Kerala, Coromandel, Laccadive, Andaman Islands, and Odisha).

Paschim Medinipur: During the present study the species has been found in Keshiary, Gopiballavpur I, Gopiballavpur II, Sabong, Debra, and Binpur-III blocks of Paschim Medinipur.

Elsewhere: Myanmar; Nepal; Pakistan; Sri Lanka; Bangladesh.

Order Synbranchiformes

Family Mastacembelidae

Genus *Macrogathus* Lacepède, 1800

***Macrogathus aral* (Bloch & Schneider, 1801)**

Local name: Pankal/Tur



Fig.52

Diagnosis of the species (Fig. 52): Body elongated, rostrum large with concave ventral surface lined with 14-28 paired toothplates. Mouth is large, its gape about 8.7-11% of HL. Teeth are small and pointed. Dorsal fin inserted behind the tip of pectoral fin. Caudal fin separated from dorsal and anal fin. Fin formula- D XVI-XXIII 44-45; P 19-24; A III 44-52; C 15.

Distribution: India: It has been found in India (West Bengal, Assam, Tamil Nadu, Orissa).

Paschim Medinipur: During the present study the species has been found in Keshiary block of Paschim Medinipur.

Elsewhere: Nepal; Pakistan, Sri Lanka, Bangladesh and Myanmar.

Macrognathus pancalus Hamilton, 1822

Local name: Katpankal/Tur



Fig.53

Diagnosis of the species (Fig. 53): Body eel like and compressed. Rostrum rounded in cross section and absent of toothplates. 2-5 spines present on the preopercle, preorbital spines strong and it pierces skin. Mouth is small. Dorsal fin inserted opposite of the anal fin. Caudal fin is separated from dorsal and anal fin. Fin formula- D XXIV-XXVI 30-42; P 17-19; A III 31-46 C 12.

Distribution: India: It has been found in India (Manipur, Uttaranchal, and West Bengal).

Paschim Medinipur: During the present study the species has been found in all blocks of Paschim Medinipur.

Elsewhere: Nepal; Pakistan; Bangladesh.

Genus *Mastacembelus* Scopoli, 1777

Mastacembelus armatus (Lacepède, 1800)

Local name: Ban Pankal

Diagnosis of the species (Fig. 54): Body slender, dull brown color, with 1-3 darker, longitudinal zigzag lines to form a reticulated pattern. It is restricted to the dorsal two thirds of the body. Preopercle with 2-3 spines, embedded in the skin. Preorbital spine strong and piercing the skin. Mouth is small, its gape about 16.1-20.9% of HL. Sharp teeth present on both jaws. Dorsal fin and anal fin joined with caudal fin. Fin formula- D XXXIII-XXXX 64-82; P 21-27; A III 64-83; C 14-17.



Fig.54

Distribution: India: It has been found in India (Arunachal Pradesh, Jharkand, Uttaranchal, West Bengal).

Paschim Medinipur: During the present study the species has been found in Chandrakona-II, Binpur-I, Keshiary, Gopiballavpur-I, Gopiballavpur-II blocks of Paschim Medinipur.

Elsewhere: Myanmar; Nepal; Pakistan; Sri Lanka; Thailand; Viet Nam; Bangladesh; Cambodia; China.

Genus *Monopterus* Lacepede, 1800
***Monopterusuchia* (Hamilton, 1822)**
Local name: Kuchia/ Jalkancho



Fig.55

Diagnosis of the species (Fig. 55): Body cylindrical and eel like. Eyes are small, head not conspicuous. Crescentic gill opening in which gill greatly reduced. Paired and large suprabranchial organ present. A rudimentary dorsal fin originates from anus. Vertically present pectoral, pelvic, anal & caudal fin. Scale longitudinally arranged. Body color is greenish, chest brown, abdomen with numeral black spot.

Distribution: India: Known from northern and northeastern India, Maharashtra and Tripura, Present in Buxa, Adma and Jayanti rivers.

Paschim Medinipur: During the present study the species has been found in Pingla, Sabong, Jhargram, Midnapur block of Paschim Medinipur.

Elsewhere: It has been found in Pakistan, Nepal, Bangladesh and Myanmar.

Order Perciformes Bleeker, 1859
Suborder Anabantoidei
Family Anabantidae Bonaparte, 1831
Genus *Anabas* Cloquet, 1816
***Anabas testudineus* (Bloch, 1792)**
Local name: Koi



Fig.56

Diagnosis of the species (Fig. 56): Body depth is 3-3.5 times in SL. Snout length 13- 17.5 times in SL. 21-29 scales present in the lateral series. Color in life dark to pale greenish, very pale below, back dusky to olive; head with longitudinal stripes ventrally; posterior margin of opercle with a dark spot; iris golden reddish. Scaled head with 4-5 rows between eye and rear margin of preoperculum. Scales are large and regularly arranged ciliate. Fin formula- D XVI-XVIII 8-10; P i 13-14; V 15; A VIII-XI 9-11.

Distribution : India: It has been found in India (Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chandigarh, Chattisgarh, Dadra-Nagar-Haveli, Daman, Darjiling, Delhi, Diu, Goa, Gujarat, Haryana, Himachal Pradesh, Jammu-Kashmir, Jharkand, Karaikal, Karnataka, Kerala, Laccadive Is., Madhya Pradesh,

Maharashtra, Mahé, Manipur, Meghalaya, Mizoram, Nagaland, Odisha, Pondicherry, Punjab, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttaranchal, Uttar Pradesh, West Bengal).

Paschim Medinipur: During the present study the species has been found in Debra, Jamboni blocks of Paschim Medinipur.

Elsewhere: Indonesia; Lao People's Democratic Republic; Malaysia; Myanmar; Nepal; Pakistan; Singapore; Sri Lanka; Thailand; Viet Nam; Bangladesh; Brunei Darussalam; Cambodia.

Anabas cobojius (Hamilton, 1822)

Local name: Koi

Diagnosis of the species (Fig. 57): Body depth is 2.2-2.8 times in SL. Snouth length 10.5- 12.5 times in SL. 25-28 scales present in the lateral series. Four vertical bands present in flanks. A dark spot present on the base of caudal fin. A black spot present on base of pectoral fin.



Fig.57

Distribution: India: It has been found in India (West Bengal, Orissa and Andhra Pradesh).

Paschim Medinipur: During the present study the species has been found in Debra, Jamboni, Pingla, and Jhargram blocks of Paschim Medinipur.

Elsewhere: Nepal; Bangladesh.

Remark: In *Anabas cobojius* (Hamilton, 1822) a dark spot present on the base of pectoral fin has been observed in the present specimen though Hamilton (1822) mentioned it as an irregular dark spot behind the margin of the gill cover.

Family Latidae Jordan, 1888

Genus Lates Cuvier, 1828

Lates calcarifer (Bloch, 1790)

Local name: Bhatki

Diagnosis of the species (Fig. 58): Body deep and compressed. Head moderate, snout rounded. Mouth is wide, gap extending to anterior border of eye. Eyes moderate, not visible from ventral surface. Teeth are villiform. Preopercle is with a strong spine at the angle and denticulated with three or four spine. Two, continuous dorsal fin is present, with 7-9 spines and 10-11 rays. Anal fin with 7-8 spines, caudal fin truncate or rounded. Lateral line complete and curved with 52-60 scales. Body color is live greenish and below silver. Fin formula: D 7-9/10-11; P 16-17; V 1/6; A 3/7-8.

Distribution : India : Chilka Lake, Ganga Estuary and Godavari estuary.



Fig.58

Paschim Medinipur: During the present study the species has been found in Sabang block of Paschim Medinipur.

Elsewhere: It has been found in eastern edge of the Persian Gulf to China, Taiwan and southern Japan, southward to southern Papua New Guinea and northern Australia.

Family Nandidae Bleeker, 1852

Genus *Nandus* Valenciennes, 1831

***Nandus nandus* (Hamilton, 1822)**

Local name: Nados/ Nayana



Fig.59

Diagnosis of the species (Fig. 59): Body oblong and fairly deep, compressed, greenish brown with brassy reflections, vertically marbled with three broad patchy blotches. Mouth very large, protrusible & teeth viliform on jaws. Fins are greenish, yellowish narrow bands of spots across soft portions of dorsal, anal & caudal fins, caudal fin slightly rounded and a dusky blotch on caudal fin base.

Fin formula: D XII-XIV 11-13; A III 7-9; P 15; V I 5

Distribution:

India: West Bengal, Arunachal Pradesh, Manipur, Meghalaya, Tripura, Nagaland, Assam.

Paschim Medinipur: Sabang, Pingla, Ghatal, Debra and Daspur block.

Elsewhere: Bangladesh, Pakistan, Nepal, Burma, Indus plain & Thailand.

Family Osphronemidae van der Hoeven, 1832

Genus *Trichogaster* Bloch & Schneider, 1801

***Trichogaster fasciata* (Bloch & Schneider, 1801)**

Local name: Kholisa



Fig.60

Diagnosis of the species (Fig. 60): Body elongate and strongly compressed. Mouth is small, slightly protrusible; upper lip papillose, especially in old males. Preorbital region is serrate in young specimen. Dorsal and anal fins are longbased. 29-31 scales in longitudinal series. Color greenish with oblique orange or bluish bars descending downwards and backwards from the back to the anal fin. Vertical fins are with alternating dark and pale spots or bars; the anal fin often with a red margin. Fin formula- D XV-XVII 9-14; P 9-14; A XV – XVIII 14-19.

Distribution: India: It has been found in India

(Arunachal Pradesh, Assam, Manipur, Nagaland, Uttaranchal, and West Bengal).

Paschim Medinipur: During the present study the species has been found in all blocks of Paschim Medinipur.

Elsewhere: Myanmar; Nepal; Pakistan; Bangladesh.

Trichogaster lalius (Hamilton, 1822)

Local name: Kholisa/ Lalia



Fig.61

Diagnosis of the species (Fig. 61): Body elongate and strongly compressed. Mouth small, slightly protrusible; lips normal. Preorbital are denticulate. Dorsal and anal fin rounded. 27-28 scales in longitudinal series. Color greenish with oblique bluish bars descending downwards and backwards from the back to the anal fin. Fin with scarlet spots or bars; the anal fin often with a red margin. Fin formula- D XV-XVII 7-10; P 10; A XVII –XVIII 13-17.

Distribution: India: It has been found in India (Arunachal Pradesh, Assam, Bihar, Manipur, Uttaranchal, Uttar Pradesh, and West Bengal).

Paschim Medinipur: During the present study the species has been found in Pingla, Binpur II,

Gopiballavpur I, Gopiballavpur II blocks of Paschim Medinipur.

Elsewhere: Nepal; Pakistan; Bangladesh.

Suborder Channoidei

Family Channidae Fowler, 1934

Genus Channa Scopoli, 1777

Channa punctata (Bloch, 1793)

Local name: Latha



Fig.62

Diagnosis of the species (Fig. 62): Body colour brown to dark green on flanks, pale yellow ventrally, several dark spots on body. Presence of scales on cheek 4-6, pelvic fin longer than half pectoral fin length, pectoral fin with no bars, lateral line scales 37-40, dorsal fin rays 28-32, lower jaw with 3-6 canines behind a single row of villiform teeth, anal fin rays 19-21, body with two rows of bars, maxilla and premaxillary processes extending to vertical level of beyond the middle of orbit, sides of lower jaw with one large cycloid scale, cephalic sensory pores single, total vertebral count 35, branchial toothplate count eight.

Fin formula- D 28-33; P 15-18; V 6; A 20-23.

Distribution: India: It has been found in India (North Bengal; Orissa; Maharashtra, Bhavani River; Tamil Nadu; Wynaad, Kerala; Tripura).

Paschim Medinipur: During the present study

the species has been found in Debra, Binpur I, Jamboni, Keshiary, Jhargram blocks of In this study this species was found in Pingla, Binpur II, Gopiballavpur I, Gopiballavpur II blocks of Paschim Medinipur.

Elsewhere: Myanmar; Nepal; Pakistan; Sri Lanka; Afghanistan; Bangladesh.

***Channa gachua* Hamilton, 1822**

Local name: Chang



Fig.63

Diagnosis of the species (Fig. 63): Body elongate and rounded. Pectoral fin extended to anal fin. Mouth is large, lower jaw with 3-6 canine teeth. Caudal fin rounded. Head scales lyes between orbit and hence. 37-40 scales in lateral line series; head to dorsal fin scale twelve; 3-3+1/2 scales between the lateral line and the base of the anterior dorsal rays; relatively small size.

Fin formula- D 28-33; P 15-18; V 6; A 20-23.

Distribution: India: It has been found in Kerala and Maharashtra.

Paschim Medinipur: During the present study the species has been found in Binpur II, Jhargram blocks of Paschim Medinipur.

Elsewhere: It has been found in Afghanistan in the west to Indonesia through South and Central Asia.

***Channa orientalis* (Bloch & Schneider, 1801)**

Local name: Chang



Fig.64

Diagnosis of the species (Fig. 64): Dorsal soft rays 33-36; head to dorsal fin scale six; anal soft rays 21 - 23. Caudal fin roundly pointed.

Distribution: India: It has been found Western Ghats, Tripura.

Paschim Medinipur: During the present study the species has been found in Debra block of Paschim Medinipur.

Elsewhere: Afghanistan and Baluchistan southward to Sri Lanka and eastward to Indonesia.

***Channa striatus* (Bloch, 1793)**

Local name: Sol



Fig.65

Diagnosis of the species (Fig. 65): Body with chevron-shaped bars pointing forward, more distinct lower part. Dorsal fin with 5 inter-radial bands on the last 4 rays and 5th to 7th rays has one band at base, number of dorsal fin rays 42-

45, anal fin rays 25-29, lateral line scales 55-65, mouth large, and lower jaw 4-7 canines behind a single row of villiform teeth, dorsal and anal fins slightly darker in colour than body maxilla and premaxillary process extending to vertical level of beyond posterior margin of orbit, presence of a sharp pointed ridge at the mid-ventral part of isthmus and anterior to it many longitudinal striae are present, cephalic single pores not single, total vertebral count 54, branchial tooth plate count 13.

Fin formula: D. 37-45, P. 12-16, V.6, A.23-26, C.13, LL.50-57.

Distribution:India: Throughout India (Present in Buxa, Adma and Jayanti rivers, Periyar Lake, Tungabhadra river, Tambraparani river system, Cauveri and Chinnar river systems, Chimmony WLS, Nilgiri Biosphere Reserve).

Paschim Medinipur: During the present study the species has been found in all block of Paschim Medinipur.

Elsewhere: Pakistan, Bangladesh, Burma, Sri Lanka, Burma, China, Philippines, Malaya Archipelago and Thailand.

Remarks: Pectoral fin rays varies from 12-16.

Channa marulius (Hamilton, 1822)

Local name: Sal



Fig.66

Diagnosis of the species (Fig.66):A species

of *Channa* with a large black ocellus on upper caudal fin base; 3 white spots on body. Dorsal fin rays 50-55, anal fin rays 31-35, sides of lower jaws with no scales, lateral line scales 60-70, 4-5 ocelli, presence of a sharp distinct pointed ridge of isthmus and anterior to it many longitudinal striae are present, lower jaw with 7 to 18 canines behind a single row of villiform teeth which deepens to 5 or 6 rows on symphysis, teeth on vomer, cephalic sensory pores not single, total vertebral count 62, branchial toothplate count 16. Five or six dark oval blotches on flank which terminate below lateral line, below lateral line between blotches pale yellow with reddish tinge distinct white spots scattered on body.

Fin formula: D 45-55; A 28-36; P 16-18; V 6 Fig.53

Distribution:India: Throughout India (Present in Buxa, Adma and Jayanti rivers, Periyar Lake, Tungabhadra river, Tambraparani river system, Cauveri and Chinnar river systems, Chimmony WLS, Nilgiri Biosphere Reserve).

Paschim Medinipur: During the present study the species has been found in Ghantal, Daspur and Debra blocks of Paschim Medinipur.

Elsewhere: Pakistan, Bangladesh, Burma, Sri Lanka, Burma, China, Philippines, Malaya Archipelago and Thailand.

Suborder Gobioidi

Family Gobiidae G.Cuvier, 1816

Genus: *Apocryptes* Valenciennes, 1837

***Apocryptes bato* (Hamilton, 1822)**

Local name: Chnia



Fig.67

Diagnosis of the species (Fig. 67) : Distinguished by the following characteristics: total elements in D2 21-23; total elements in anal fin 20-24 ; head length 21.9-23.9% SL; in some preserved specimens, 6-7 vertical narrow, brown bars along sides, anteriormost coursing from dorsum through pectoral base; caudal fin length 22.6-32.9% SL.

Distribution: India: It has been found in India (Orissa, lower Bengal, Tripura).

Paschim Medinipur: During the present study the species has been found in Pingla blocks of Paschim Medinipur.

Elsewhere: Bangladesh and Myanmar.

***Apocryptes caudalis* Paul and Chanda, 2015**

Local name: Chnia



Fig.68

Diagnosis of the species (Fig. 68):In *Apocryptes caudalis* standard length (8.9 c.m) is small than the *Apocryptes bato* (14.1 c.m). Body is elongate, slippery in live condition, subcylindrical upto the base of pelvic fin. Head sub cylindrical, length ranges from 22.47-25.28 %SL. Head with minute scale. Shoulder girdle is smooth. Mouth is horizontal, cleft extending middle of the eye. Snout length ranges between 19.44 – 26.5% HL. Lips thick, upper jaw bend downward, lower jaw slightly longer. Eyes are small, placed in the middle portion of the head and not visible from the ventral side ranges between 14.90- 17.13%HL. Barbells absent, Isthmus broad, a pair of canine teeth present in the lower jaw. Tongue rounded, gill openings are less wide. Standard length ranges between 73.4 cm to 89.0 cm. Dorsal fin spine 5/6; thin and flexible. Base of 1st dorsal fin length was 10.32 – 15.83 % SL. Spines connected each other by membrane. First spine shorter than other, fifth spine is longest. Fin rays of second dorsal fin 22-25. Tip of last ray of second dorsal fin exceed the base of the anal

fin. Fins are connected by membrane from base to the tip. Base of 2nd dorsal fin length was 43.46 – 47.39 % SL. Rays is simple. Membranes are spotted. Pectoral fin rays 17-20, range between 13.37 – 17.5 %SL, middle rays are long and outer rays are short. Anal fin is ribbon like ranges between 42.28 – 50.66% SL and extend upto the caudal fin. Caudal fin is lanceolate shaped, ranges between 36.43- 52.8%SL. There is a gap between anal fin and caudal fin. Pelvic fin united, forming a cup like structure, rages between 12.51 - 14.62 % SL with 11-13 branched rays. 7-9 vertical bars present in the dorsal side. First bar locate beneath the base of pectoral fin, second at the tip of the first dorsal fin, third at the end of first dorsal fin, fourth between the 4th and 5th rays of second dorsal fin, fifth at the 9th rays, sixth between the 12th and 13th rays, seventh between the 16th and 17th rays , eight at the 22nd ray, ninth placed at the last rays.

Distribution: During the present study the species has been found in Pingla, Paschim Medinipur, and West Bengal, India

Genus: *Brachyamblyopus* Bleeker, 1874
***Brachyamblyopus brachysoma* (Bleeker, 1854)**

Local name: Chnia



Fig.69

Diagnosis of the species (Fig. 69): Body very elongate, compressed laterally and having no scales. Head is depressed, scaleless, lack of barble. Eyes are small, not visible from ventral surface. Mouth oblique, jaws sub equal. Teeth three rows in both jaws, outer row of teeth is enlarged, canine absent. In opercular region no pouch like depression found. Isthmus broad, gill opening is as long as the breadth of pectoral fin base. Dorsal fin is continuous with caudal fin with six spines and 36 soft rays. Pectoral fin is with 30 rays. Anal fin is with one spine and 32 soft rays, continuous with caudal fin. Caudal fin long and pointed, with 16 soft rays.

Distribution: India: It has been found in India (Andhra Pradesh, West Bengal).

Paschim Medinipur: During the present study the species has been found in Sabang block of Paschim Medinipur.

Elsewhere: Thailand, Hong Kong, Indonesia, New Guinea, Africa and also found in Persian Gulf.

Genus *Glossogobius* T.N.Gill, 1859
***Glossogobius giuris* (Hamilton, 1822)**

Local name: Baligar

Diagnosis of the species (Fig. 70): Head flattened, lower jaw projecting; body pale without longitudinal lines. Dorsal fins with small spots forming longitudinal stripes. Pelvic fins jointed but attached to the body only from their anterior part. The body is brownish yellow with 5 to 6 dark and rounded spots on its sides. Some specimens living on dark substrates can be very dark also. Some living on very light substrates shows an ivory coloration. Dorsal fins are light with brownish spots. Pelvic fins are grey, Pectorals and caudal are grey and often hyaline. Fin formula- D VI+I 8-9; P 16-21; A I 7-8.



Fig.70

Distribution: India: It has been found in India (Madras, Kerala, Maharashtra, Moyar, Kallampalayam, Tamil Nadu, Tripura, Orissa and West Bengal).

Paschim Medinipur: During the present study the species has been found in Narayangarh, Binpur II, Gopiballavpur I, Gopiballavpur II, Pingla, and Jhargram blocks of Paschim Medinipur.

Elsewhere: Indonesia; Kenya; Lao People's

Democratic Republic; Madagascar; Malawi; Malaysia; Micronesia, Federated States of ; Mozambique; Myanmar; Nepal; New Caledonia; Palau; Papua New Guinea; Philippines; Réunion; Seychelles; Singapore; South Africa; Sri Lanka; Taiwan, Province of China; Tanzania, United Republic of; Thailand; Viet Nam; Australia; Bangladesh; Brunei Darussalam; Cambodia.

Genus: *Stigmatogobius* Bleeker 1874

***Stigmatogobius sadanundio* (Hamilton-Buchnan, 1822)**

Local name: Baligar



Fig.71

Diagnosis of the species (Fig. 71): Body elongate and somewhat compressed, colour olive with several black spot, in one or two longitudinal rows on flanks. Mouth oblique, lower jaw is prominent, teeth on jaws in several rows. Caudal fin is rounded with small black spots in 3 or 4 transverse rows.

Fin formula: D VI+I 7; A I 8; P i 16-17

Distribution:

India: West Bengal & Odisha

Paschim Medinipur: Only from Sabang block.

Elsewhere: Bangladesh, Sri Lanka, Singapore and Indonesia.

Genus: *Odontamblyopus* Bleeker, 1874
***Odontamblyopus rubicundus* (Hamilton, 1822)**

Local name: Chnia



Fig.72

Diagnosis of the species (Fig. 72): Body elongated with sub cylindrical anterior and compressed posterior parts. Four canine teeth present on each side of upper jaw and four/five canine teeth on each side of lower jaw. Barbels present on chin and almost vertical mouth cleft. Scales are minute. Dorsal and anal fins are almost confluent with caudal fin. Caudal black but other fins are reddish. Pelvic fins united.

Fin formula: D. Vi/34-39; P. 28-30; V. i/5; A. 33-37; C. 15.

Distribution: India: It has been found in India (West Bengal and Maharashtra).

Paschim Medinipur: During the present study the species has been found in Sabang, Pingla blocks of Paschim Medinipur.

Elsewhere: Myanmar and Bangladesh.

Genus: *Pseudoapocryptes* Bleeker, 1874
***Pseudapocryptes elongates* (Cuvier, 1816)**

Local name: Chnia



Fig.73

Diagnosis of the species (Fig. 73): Anal fin with 28-31 total elements (mean = 29.3); body depth 9.9-13.6% SL (mean = 11.4%); head length 14.8-22.0% SL (mean = 17.7%); head depth 7.8-11.4% SL (mean = 9.3%); pectoral fin length 10.4-13.4% SL (mean = 11.9); pelvic fin length 9.0-11.5% SL (mean = 10.6%); few brown spots, if any, on body.

Distribution: India: It has been found in mudflats from the east coast of India (West Bengal)

Paschim Medinipur: During the present study the species has been found in Pingla, Sabang blocks of Paschim Medinipur.

Elsewhere: South Vietnam, Kalimantan and Java., China, Japan.

Suborder Percoidae

Family Ambassidae Klunzinger, 1870

Genus *Chanda* F.Hamilton, 1822

***Chanda nama* Hamilton, 1822**

Local name: Chanda

Diagnosis of the species (Fig. 74): Body small, ovate and transparent. Mouth is large, teeth villiform on jaws. Scales are minute in size. Lateral line indistinct with 100-107 scales. Cheek has 7 rows of transverse scales. Fin formula- D VII+I 15-17; P ii 11-12; V I 5; A III 15-17.



Fig.74

Distribution:India: It has been found in India (Maharashtra, Odisha, Uttar Pradesh, Bihar and West Bengal).

Paschim Medinipur: During the present study the species has been found in all blocks of Paschim Medinipur.

Elsewhere: Nepal; Pakistan; Bangladesh.

Genus *Parambassis* Bleeker, 1874

***Parambassis baculis* (Hamilton, 1822)**

Local name: Chanda



Fig.75

Diagnosis of the species (Fig. 75): Body small and compressed. Mouth oblique, lower jaw included when mouth closed. On the lower arm of first arch of gillrakers are about 11. Scales are small. Lateral line has 90 scales. Cheek has 7 rows of transverse scale. Fin formula- D VI+I 12-13; P i 11-12; V I 5; A III 12-13.

Distribution: India: It has been found in India (Arunachal Pradesh, Assam, Bihar, Karnataka, Tripura, Uttar Pradesh, and West Bengal).

Paschim Medinipur: During the present study the species has been found in Sabong block of Paschim Medinipur.

Elsewhere: Myanmar; Bangladesh.

Parambassis lala (Hamilton, 1822)

Local name: Chanda



Fig.76

Diagnosis of the species (Fig. 76): Body small and almost rounded. Mouth is oblique. On the lower arm of first arch of gillrakers are about 16. Second spine of dorsal fin very elongated. Scales is minute, Lateral line with 85- 90 scales. Cheek has 7 rows tranverse scale. Body is orangish yellow with three longitudinal bands extending dorsoventrally. Fin formula- D VII+I 11; P i 10; V I 5; A III 13.

Distribution: India: It has been found in India (Assam, Bihar, Orissa, Tripura, and West Bengal).

Paschim Medinipur: During the present study the species has been found in Chandrakona II, Keshiary, Jhargram, Gopiballavpur I, Gopiballavpur II, Garbrta III, Binpur II blocks of Paschim Medinipur.

Elsewhere: Myanmar.

Remarks: Lateral line absent in some specimen. Lateral line scale vary from 85 -90. A spot present on the base of caudal fin. Caudal fin directed downwards.

Parambassis ranga (Hamilton, 1822)

Local name: Chanda



Fig.77

Diagnosis of the species (Fig. 77): Body stout, deep & compressed. One or two serration found at the angle of preopercular hind region. Mouth is oblique. 21-25 gillrakers found in lower arm of first arch. Scales are small. Lateral line with 47-63 scales. Cheek with 7 rows tranverse scale. A broad lateral silvery stripe present on the body. A dusky spot present on shoulder. Fin formula- D VII+I 11-14; P i 11-12; V I 5; A III 13-15.

Distribution: India: It has been found in India (Bihar, Jharkand, Madhya Pradesh, Maharashtra, Odisha and West Bengal).

Paschim Medinipur: During the present study the species has been found in Gopiballavpur-I, Gopiballavpur-II and Pingla blocks of Paschim Medinipur.

Elsewhere: Malaysia; Myanmar; Nepal; Pakistan; Bangladesh; Cambodia.

Family Badidae Barlow, Liem & Wickler, 1968

Genus *Badis* Bleeker, 1854

***Badis badis* (Hamilton, 1822)**

Local name: Not known



Fig.78

Diagnosis of the species (Fig. 78): Body depth 30.7-38.9%SL; interorbital width 6,5-8,3% SL; The species has conspicuous dark blotch covering superficial part of cleithrum above pectoral fin base. Absent of a dark caudal peduncle blotch. Scales in lateral row 25-27; circumpeduncular scales 19-20; pectoral rays usually 12. Presence of a series of prominent dark blotches along dorsal fin base and/or a series of dark blotches along middle of dorsal fin; and has indistinct bars on side. Has a distal extrascapular. Fin formula- D XV- XVIII 7-10; P 12; V I 5; A III 6-8.

Distribution: India: It has been found in India (Assam, Bihar, Himachal Pradesh, Manipur, Orissa, Uttaranchal, Uttar Pradesh, West Bengal).

Paschim Medinipur: During the present study the species has been found in Gopiballavpur I, Gopiballavpur II blocks of Paschim Medinipur.

Elsewhere: Nepal; Pakistan; Bangladesh; Bhutan.

Order Clupeiformes Bleeker, 1959

Family Clupeidae Cuvier, 1817

Genus *Gudusia* Fowler, 1911

***Gudusia chapra* (Hamilton, 1822)**

Local name: Khira

Diagnosis of the species (Fig. 79): Body deep and strongly compressed. 26 to 29 scutes present on belly. Upper jaw has a distinct median notch. A single triangular pectoral axillary scale is present. Pelvic fin originates just before dorsal fin origin. 77-110 scales present in lateral series. Body is spotted with round spots. Fin formula- D 14-17; P 12-14; V 8-9; A iii 18-22; C 19.



Fig.79

Distribution: India: It has been found in rivers of India and Bangladesh (chiefly the Ganges and Brahmaputra systems and the Mahanadi River of Orissa).

Paschim Medinipur: During the present study the species has been found in Jhargram, Salboni, Sabang block of Paschim Medinipur.

Elsewhere: Reported from Nepal and Pakistan.

Order Anguilliformes Berg, 1943
Family Anguillidae Rafinesque, 1810
Genus *Anguilla* Garsault, 1764
***Anguilla bengalensis bengalensis* (Gray,**
1831)

Local Name: Neturd



Fig. 80

Diagnosis of the species (Fig. 80): Body elongate, cylindrical in front, somewhat compressed along Tail. Head conical, flattened dorsally; anterior nostril a narrow tube on face of snout; upper and lower lips prominent; lower jaw longer than upper, projecting; angle of mouth appreciably behind rear margin of eye; eye relatively small; teeth small, inconspicuous, multiserial, forming relatively narrow bands on the jaws and in an anteriorly broad, but posteriorly narrow band on the vomer (roof of mouth); teeth on upper jaw more or less in 3

rows, those in the middle row larger, and the 2 outer rows separated for most of their length from the inner row by a tooth-free /groove; vomerine band narrows conspicuously before its mid-length. Dorsal fin origin nearer anus than gill opening; pectoral fins present. Minute elongate-oval scales present all over body, embedded in skin. Vertebrae 106 to 112.

Fin formula: D. 250-305; P. 18; A. 220-250; C. 10-12.

Colour: typically yellowish to olive or brown, mottled with dark brown, lighter below
Distribution

Distribution: India: East and west coast of India

Paschim Medinipur: During the present study the species has been found in Subarnarekha River in Gopiballavpur I, blocks of Paschim Medinipur.

Elsewhere: Pakistan; Bangladesh; Sri Lanka and Sumatra.

9. Conclusion

Indigenous freshwater fish found in vast inland water of undivided Paschim Medinipur district is an important natural resource. It not only provides a good source of nutrition but also gives an opportunity for livelihood and income generation to a large number of people. The people live in the area near freshwater bodies, capture fish but they don't know that which fish provide them higher nutritional value, though they try to supply nutritious fish food to their families. Research has shown that the bioavailability of calcium from these small indigenous freshwater fish species is at par with that derived from milk (Roos et al., 2007). Very less attention has been paid on the role of fresh water small indigenous fish in aquaculture, nutrition, biology, breeding, livelihood security and conservation needs. Therefore, the status of many small indigenous fresh water fishes have now been threatened due to pollution, over

exploitation, habitat destruction, huse siltation, fragmentation of habitat and introduction of forbidden exotic species. So, appropriate planning for conservation and management strategies are very much important to safeguard these natural resources. Various aspects of small freshwater fishes are very least studied. Their information regarding distribution, population dynamics and threaten status are incomplete, and most of the information available is from a few well-studied locations only. Present manual attempts to highlight the diversity, identification and distribution of small as well as large indigenous freshwater fish resources found in undivided Paschim Medinipur. The study reveales the records of 80 indigenous freshwater fish species, very common in natural as well as cultural water body of this district. All the species have been presented herewith colour photographs for easy field identification. In the present document taxonomic classification were followed as Talwar and Jhingran (1991); Rainboth, J.(1996); Jayaram, K. C. (2010); Keat-Chuan Ng C. *et al.* (2017).

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