

Environment and Fisheries of River

DAMODAR



CIFRI

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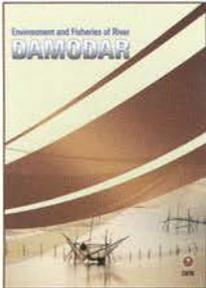
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Barrackpore, Kolkata - 700120



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Introduction

River Damodar originates near Chandwa village, Palamau district, on the Chota Nagpur Plateau in the Jharkhand state in eastern India, and flows eastward for about 592 km through the states of Jharkhand and West Bengal to the estuary of the River Hooghly. It has a number of tributaries and subtributaries, such as Barakar, Konar, Bokaro, Haharo, Jamunia, Ghari, Guaisa, Khadia and Bhera.

The Damodar river basin is a sub basin and part of the river Ganga spreading over an area of about 23,370.98sqkm. The geographical boundary of the basin lies between 22°5'1' to 24°30'N Latitude & 84°30' to 88°15'E Longitude and extends over six districts of Jharkhand viz. Palamau, Hazaribag, Dhanbad, Santal Pargana & Ranchi and five districts of West Bengal viz. Purulia, Bankura, Burdwan, Hooghly & Howrah.

The river serves as an important source of livelihood for the artisanal fishermen. However, over the years, various anthropogenic activities have altered the aquatic environment of the river. The production process at different trophic levels of fishes has been impeded resulting in a decline in fish production and diversity. Keeping the above aspect in view investigations were undertaken to assess the present status of the aquatic environment and fishery of river Damodar.

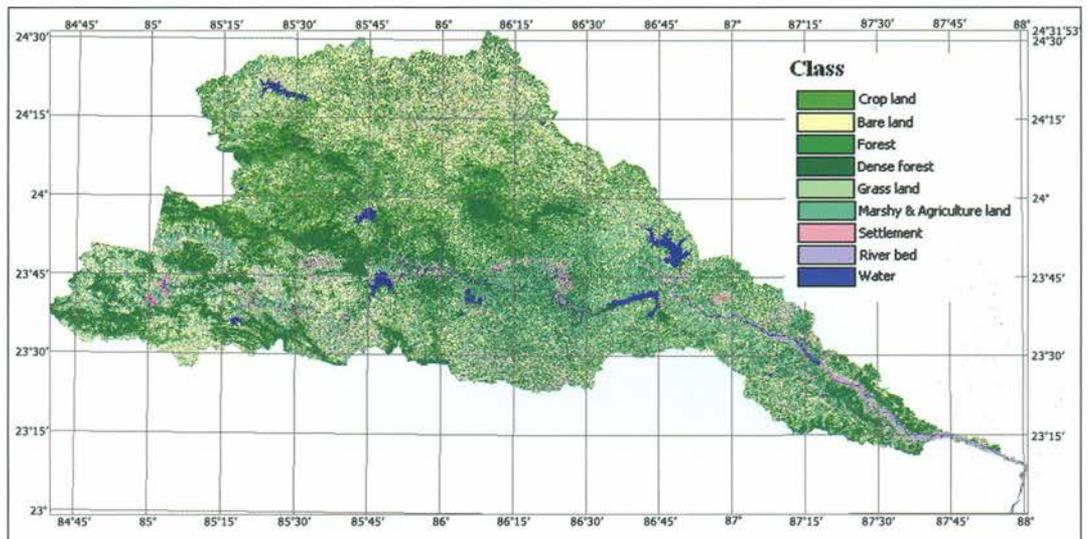


Fig. 1. Map of river Damodar

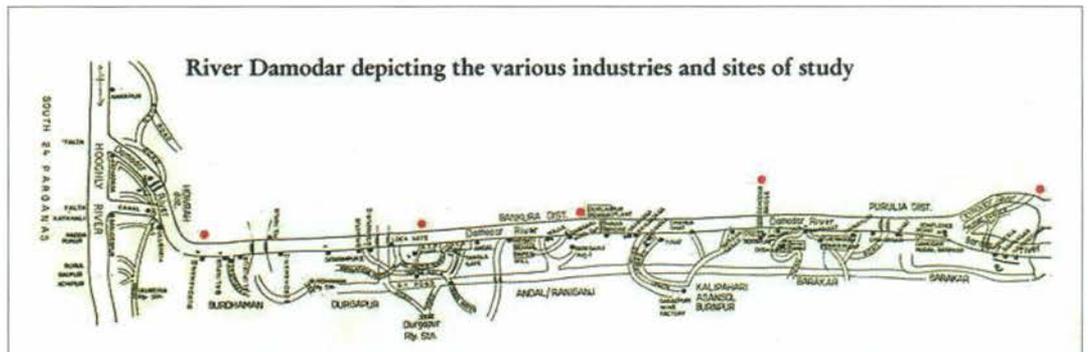


Fig. 2.

Study Area

Investigation was conducted in seven sites in the lower stretch of the river from Jamalpur to Ramgarh. Positional coordinates of each sampling area was recorded ranging from N 23° 30.0", E 87° 19.12" to N 23° 4' 12", E 87° 58' 48" and at elevation from 213 ft. to 3479 ft.. (Fig. 1 & 2)

Habitat characteristics of river Damoder

The fish habitat characteristics of the studied sites of the river from Jamalpur to Ramgarh covering 123 km stretch of the river are depicted in figures 3 - 26. Across the sampling sites the width of main channel ranged from 150-200 M with mean depth range of 4.5- 12 M. Upstream the substrate was sandy with gravels and boulders but downstream lower stretch was mixed sandy clay.

Jamalpur



Fig.3



Fig. 4



Fig. 5

GPS Coordinates	N 23° 04.123', E087° 59.121'
Elevation	62 m.
Width of channel (wetted)	350 m.
Depth (Av.)	16.5 ft.
Water velocity	95 cm./sec.
Substrate composition	Sand-75%, Clay-10%, Others -15%
Other information	Good riparian vegetation observed in the left bank of the river.

Burdwan



Fig. 6



Fig. 7



Fig. 8

GPS Coordinates	N 23° 11.906', E 087° 52.289'
Elevation	89 m.
Width of channel (wetted)	800 m.
Depth (Av.)	16.1 ft.
Water velocity	90 cm./sec.
Substrate composition	Sand-80%, Clay-10%, Others -10%
Other information	Sand mining observed, erosion of river bank

Randiha



Fig. 9



Fig. 10



Fig. 11

GPS Coordinates	N 23° 22.374', E 087° 28.555'
Elevation	91 m.
Width of channel (wetted)	800 m.
Depth (Av.)	14 ft.
Water velocity	110 cm./sec.
Substrate composition	Sand-85%, Clay-5%, Others -10%
Other information	Anicut constructed for regulating water discharge, medium riparian vegetation on the river banks.

Ashis Nagar



Fig. 12



Fig. 13



Fig. 14

GPS Coordinates	N 23° 28.415', E 087° 18.132'
Elevation	101 m.
Width of channel (wetted)	700 m.
Depth (Av.)	20.5 ft.
Water velocity	105 cm./sec.
Substrate composition	Sand-65%, Clay-15%, Others -20%
Other information	Good riparian vegetation, sand dunes present scattered in the river, barrage commissioned and industrial waste discharged into the river.

Namomejia



Fig.15



Fig. 16



Fig. 17

GPS Coordinates	N 23° 33.989', E 087° 07.380'
Elevation	107 m.
Width of channel (wetted)	800 m.
Depth (Av.)	16 ft.
Water velocity	72 cm./sec.
Substrate composition	Clay-35%, Sand-45%, Cobbles, gravels etc. -20%
Other information	Infestation of aquatic weeds, social forestry in the river banks, thermal power plants in the near vicinity of river, industrial waste being discharged into the river.

Burnpur



Fig. 18



Fig. 19



Fig. 20

GPS Coordinates	N 23° 37.892', E 086° 56.604'
Elevation	110 m.
Width of channel (wetted)	500 m.
Depth (Av.)	12 ft.
Water velocity	92 cm./sec.
Substrate composition	sand-36%, clay-15%, boulders, cobbles and gravels-49%
Other information	

Panchet



Fig. 21

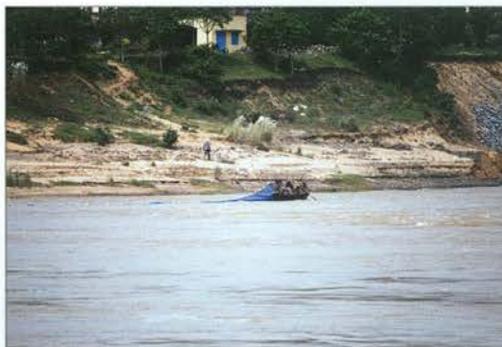


Fig. 22



Fig. 23

GPS Coordinates	N 23° 40.565', E 086° 45.104'
Elevation	113 m.
Width of channel (wetted)	250 m.
Depth (Av.)	27.5 ft.
Water velocity	110 cm./sec.
Substrate composition	sand-45%, clay-15%, boulders, cobbles and gravels-40%
Other information	Dam constructed on the river, medium riparian vegetation observed, water flow synchronized with the opening of sluice gate.

Ramgarh



Fig. 24



Fig. 25



Fig. 26

GPS Coordinates	N 23° 38.500', E 085° 45.385'
Elevation	361 m.
Width of channel (wetted)	200 m.
Depth (Av.)	12 ft.
Water velocity	90 cm./sec.
Substrate composition	sand-25%, boulders-35%, cobbles- 20%, gravels and others-30%
Other information	Water lifting pump present, artificial embankment across the river, riparian vegetation and domestic houses present.

Environmental Status

The distinctive feature of the basin is that around three fourth of its area representing the upper catchment falls in Jharkhand, while the low lying flood plains lie entirely in West Bengal. Industrial establishments along this stretch viz., a) Coal mines b) Coal washery, coal handling and coke oven plant c) Thermal power station d) Steel plant e) Fertilizer cement and chemical industry are the sources of water quality degradation. The maximum utilization of the river water is for agriculture, followed by industries (Fig. 27 & 28). The annual rainfall vary between 765 to 1607 mm with an average of 120 mm of which occurs during the monsoon season.

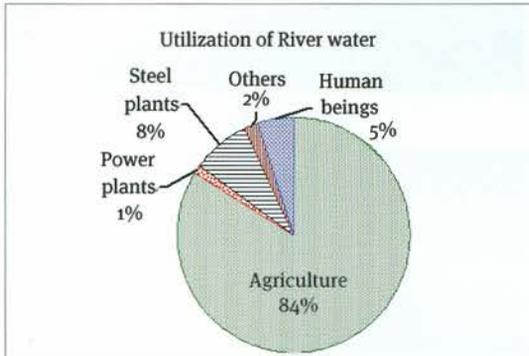


Fig. 27

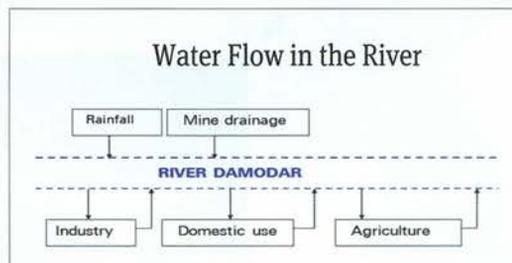


Fig. 28

Sources of pollution

Various anthropogenic activities stressing the aquatic fish habitat of the river is depicted in Figures 29 to 36.



Fig. 29 Industrial effluent releasing tunnel from Durgapur Industrial complex



Fig. 30 Release of effluent from an industry at Durgapur



Fig. 31 Industrial effluent passing through human habitation outside Durgapur city complex



Fig. 32 Coal washery discharge in Damodar river at Raniganj

Agricultural practices



Fig. 33 Agricultural practices around an industry



Fig. 34 Cultivation of vegetable on the side of effluent flowing canal at Durgapur



Fig. 35 Ravi crop cultivation on the bank of effluent discharge canal



Fig. 36 Sand mining of the river bed



Fishery of River Damodar

Fish identification characteristics: The 68 fish species recorded during the study, their identifying characters, habitat characteristics and conservation status are detailed below.

Order: Osteoglossiformes

- ▶ Body strongly compressed
- ▶ Dorsal fin tiny, placed in centre of back
- ▶ Anal fin long and merged with caudal fin
- ▶ Pectoral fins inserted low on body
- ▶ Pelvic fins rudimentary

Family: Notopteridae

- ▶ Body profound and compressed
- ▶ Large eyes and wide mouth
- ▶ Dorsal fin small
- ▶ Scales very minute.
- ▶ Pelvic fins undeveloped

Notopterus Notopterus (Pallas)



Synonyms: *Gymnotus notopterus*, *Notopterus kaporat*, *Notopterus osmani*,

Common Name: Grey featherback (English)

Local name: Phulo, Phuloi (West Bengal)

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: Important food fish. Also considered as an aquarium fish.

Identifying Characters: Body strongly compressed. Head compressed and its length about 4.5 times in standard length. Dorsal fin inserted nearer snout-tip than to base of caudal fin. Pectoral fins moderate, extend beyond anal fin origin. Scales minute, considerably larger on opercles than on body. Silvery white with numerous fine grey spots on body.

Other information: Inhabits standing and sluggish waters of lakes, floodplains, canals and ponds. Found in clear streams and enters brackish waters. This species collected from the middle and lower stretches of river at Ashish Nagar, Panchet, Jamalpur and Randhia sites. Fishes feed on insects, crustaceans and some young roots of aquatic plants.

Order: Clupeiformes

- ▶ Body condensed
- ▶ Adipose fin absent, fins without spine
- ▶ Keeled scutes often present in the abdomen
- ▶ Branchiostegal rays 4 to 8.

Family: Clupeidae

- ▶ Body subcylindrical or strongly compressed.
- ▶ Gillrakers often numerous, long and slender in most species.
- ▶ Fins without spines
- ▶ Caudal fin deeply forked.

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

Synonyms: *Clupanodon chapra*, *Clupea chapra*, *Clupia suhia*, *Gadusia variegata*, *Gudusia godanahiai*,

Common Name: Indian River Shad (English)

Local name: Khoira (West Bengal)

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: Food fish

Identifying Characters: Body deep, scutes present along belly. Dorsal fin placed between snout tip and caudal fin base. Dorsal fin with 4 unbranched and 11-13 branched rays, anal fin consists of 3 unbranched and 19-22 branched fin rays. Lateral scales 77-91. Brown shade present on the back side and silvery grey in the flanks. Dark blotch observed behind gill opening.

Other information: Found in middle and upper reaches of rivers. Also occurs in ponds, beels, ditches and inundated fields. Feeds on small insects, larvae and decayed benthic materials. The fish collected from lower middle stretch of the river at Ramgarh, Panchet, Namomezia, Ashis Nagar, Burnpur, Burdwan and Jamalpur.

Order: Cypriniformes

- ▶ Barbels present or absent.
- ▶ Dorsal fin composed of soft branched rays.
- ▶ Pelvic fins abdominal. Head scaleless; body covered with cycloid scales, rarely wholly or partly naked; lateral line almost always present and complete.
- ▶ Branchiostegal rays 3.

Family: Cyprinidae

- ▶ Body compressed.
- ▶ Mouth terminal to inferior, toothless.
- ▶ Barbels present or absent, if present, one or two pairs.
- ▶ Pharyngeal teeth well developed, in one to three rows, never more than eight teeth in any row.
- ▶ Gill-openings wide; gill-membranes usually joined with isthmus.
- ▶ Branchiostegal rays 3.

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

Synonyms: *Cyprinus mola*, *Amblypharyngodon saranensis*, *Amblypharyngodon gadigarhi*

Common Name: Mola carplet, Pale Carplet (English).

Local name: Maurala (West Bengal).

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: Important food fish with high market value.

Identifying Characters: Abdomen more or less rounded. Upper lip absent. Barbels absent. Dorsal fin inserted behind pelvic fin base. Scales small, lateral line incomplete. A broad silvery lateral band on body.

Other information: Found in fresh water rivers, canals, beels, slow-moving stream, nullahs and paddy fields. Feeds on plankton and larvae of small insects. The fish sample collected from the lower-middle stretch in Panchet, Ashish Nagar, Randiha, Burnpur and Jamalpur sites.

***Aspidoparia morar* (Hamilton-Buchanan)**

Synonyms: *Cyprinus morar*.

Common Name: Aspidopara (English)

Local name: Morari (West Bengal)

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: Food fish, often consumed by the people

Identifying Characters: Mouth inferior, jaws short, lower jaw without any lip but with a sharp crescentic bony edge. Body elongate and subcylindrical. Barbels absent. Dorsal fin inserted well behind pelvic fin base. Dorsal fin with 7 to 8 branched and 2 to 3 unbranched rays and without any spine. Lateral line curved, running in lower half of caudal peduncle with 38 to 42 scales.

Other information: Inhabits fresh water rivers, streams, lakes in plains and mountainous regions. It is a herbivorous species. The fish species recorded from Namomezia, Ashis Nagar, Randiha, Burnpur and Jamalpur sites of river Damodar.

Barilius barila (Hamilton-Buchanan)



Synonyms: *Cyprinus gora*, *Leuciscus cultellus*, *Chela gora*, *Oxygaster gora*.

Common Name: Gora chela (English)

Local Name: Ghora-chela (West Bengal)

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: Trash fish and no interest to fishery, consumed by people in some places

Identifying Characters: Body more or less elongated and compressed. Cleft of mouth reaching to anterior edge of eye. Edge of abdomen with a sharp keel extends from below operculum to anal fin. Short dorsal fin inserted slightly anterior to origin of anal fin. Scales small, lateral line complete and curved downwards with 120-160 scales.

Other information: Inhabits tanks, beels, canals and rivers. It is a surface feeder and feeds on insect larvae and crustaceans. Fish species collected from Panchet, Namomezia and Randiha, sites of river Damodar.

Barilius barna (Hamilton-Buchanan)



Synonyms: *Cyprinus (Barilius) barna*, *Barilius jayarami*.

Common Name: Barna baril (English),

Local name: Bhola (West Bengal)

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: Less important fish

Identifying Characters: Dorsal fin with 2 unbranched and 7 branched rays. Body deep, mouth moderate, maxilla extends to anterior-third of orbit. Barbels absent. Scales moderate, lateral line with 15-16 scales. Seven to eleven vertically dark bars on body, black patches present in the edges of dorsal and caudal fins.

Other information: Occurs in large hill streams and shallow clear rivers. The omnivorous fish species collected from Ramgarh, Namomezia and Burnpur sites.

***Barilius bendelisis* (Hamilton-Buchanan)**



Synonyms: *Cyprinus bendelisis*, *Cyprinus (Barilius) cocsa*, *Cyprinus (Barilius) chedra*, *Barilius howesi*.

Common name: Hamilton's barila (English)

Local name: Joia (West Bengal)

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: One of the important hill stream fish and considered as food fish

Identifying Characters: Body shallow and mouth moderate. Barbels two pairs, rostral and maxillary, the rostral pair rudimentary or often absent. A thick layer of spiny tubercles on snout and lower jaw. Dorsal fin inserted in advance of anal fin and nearer to caudal base than to snout tip. Pectoral fin rays 15.12 dark bands descending towards the lateral line which become indistinct and appears as spots in adults. Lateral line scale with two black spots at their base.

Other information: Inhabits streams, rivers, particular in hill stream. Also found in fresh water adjacent to rocky substrate. Feeds on small insects and plankton. The fish species occurred in Ramgarh, Namomezia and Burnpur sites.

***Barilius vagra* (Hamilton-Buchanan)**



Synonyms: *Cyprinus (Barilius) vagra*

Common name: Vagra baril (English)

Local Name: Koksa (West Bengal)

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: Less important fish

Identifying Characters: Barbels two pairs, the maxillary pair very short, rostral pair slightly larger than maxillary pair. Dorsal fin inserted behind pelvic fin just anterior to anal fin and its last two fin rays over anal fin. Pectoral fin rays 15 to 16, pectoral shorter than head. Anal fin rays 12 to 15. Lateral line with 38 to 44 scales. Number of pre-dorsal scale 21 to 26. Body with 10 to 14 bluish spots (sometimes indistinct) usually much above lateral line. Maximum size: 12.5 cm.

Other information: Lives in hill streams with gravelly and rocky bottom. The fish species collected from Ramgarh, Namomezia and Burnpur sites.

Catla catla (Hamilton-Buchanan)



Synonyms: *Cyprinus catla*, *Catla buchanani*.

Common Name: Catla (English),

Local name: Catla (West Bengal)

Conservation Status (IUCN): Not Evaluated (NE)

Commercial importance: One of the important fastest growing Indian major carp excellent in eating with high market priced.

Identifying Characters: Body deep, head enormously large. Mouth upturned and upper lip absent. Barbels absent. Dorsal fin with 17-20 fin rays (14 to 16 branched rays). Scales large and lateral line with 40 to 43 scales.

Other information: Found in rivers, lakes and culture ponds. Occurs up to altitude of 500 m. The species collected from Panchet and Ashis Nagar sites of river Damodar. Surface dwelling species mainly herbivorous in nature.

Chagunius chagunio (Hamilton-Buchanan)





Synonyms: *Cyprinus chagunio*, *Barbus chagunio*, *Barbus spilopholus*, *Barbus (Chagunius) chagunio*.

Common Name: Chaguni (English)

Local name: Jerruah (West Bengal)

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: Good sport and food fish

Identifying Characters: Mouth sub-terminal, lips fleshy with tiny papillae. Two pairs of barbels (rostral & maxillary), longer than orbit. Dorsal spine strong and serrated, dorsal fin with 13 rays (8 branched rays). Scales diamond shaped, lateral line with 44 to 48 scales. Last two anal fin rays elongated in males.

Other information: Usually found in fast flowing large rivers with rocky bottom. This omnivorous fish sample collected from Ramgarh, Namomezia, Ashis Nagar, Burnpur and Burdwan sites of river Damodar.

Cirrhinus mrigala (Hamilton-Buchanan)



Synonyms: *Cyprinus mrigala*, *Cirrhina mrigala*, *Cirrhinus chaudhryi*

Common Name: Mrigal (English)

Local name: Mrigal (West Bengal)

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: One of the important Indian major carp with excellent in eating.

Identifying Characters: Body streamlined. Lower lip indistinct. One pair of short rostral barbels. Dorsal fin with 15-17 rays (12 to 13 branched rays). Lateral line with 40 to 45 scales.

Other information: Inhabits fast flowing streams and rivers. A very active fish that thrives in ponds but spawns in swift rivers. The fish sample collected from Panchet, Namomezia, Ashis Nagar, Randiha, Burnpur and Jamalpur of river sites. Omnivorous feeding habit.

Cirrhinus reba (Hamilton-Buchanan)



Synonyms: *Cyprinus reba*, *Cirrhina reba*.

Common Name: Reba carp (English)

Local name: Kcharge bata (West Bengal)

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: Important food fish.

Identifying Characters: Body elongate. Dorsal fin with 10-11 rays (8 branched rays). A thin cartilaginous layer covering lower jaw. Scales hexagonal. A short pair of rostral barbels. Lateral line with 34 to 38 scales.

Other information: Inhabits large streams and rivers. Fish sample collected from middle lower stretches of river Damodar at Ramgarh, Namomezia, Ashis Nagar, Randiha, Burnpur, Burdwan and Jamalpur sites.

Crossocheilus latius latius (Hamilton-Buchanan)



Synonyms: *Cyprinus latius*, *Cirrhina latia*.

Common Name: Gangetic latia (English)

Local name: Kalabatta (West Bengal)

Conservation Status (IUCN): Not Evaluated (NE)

Commercial importance: Food fish with less importance.

Identifying Characters: Body fairly elongate. Dorsal profile more convex than ventral profile. barbels 2 pairs (maxillary and rostral). A pendulous lobe at corners of mouth. Origin of dorsal fin midway between snout-tip and posterior base of anal. Dorsal with 12 fin rays (8 branched). Caudal deeply forked. Lateral line continuous with 36 to 41 scales. Body with a faint longitudinal stripe along sides of the body.

Other information: Inhabits freshwater streams and rivers. Survive on stony bottom which provides good shield from fast current of water and from predators. This species recorded from Ramgarh and Ashis Nagar sites. It is a herbivore species.

Ctenopharyngodon idella (Valenciennes)



Synonyms: *Leuciscus idella*, *Ctenopharyngodon idellus*

Common Name: Grass carp (English)

Local name: Grass carp (West Bengal)

Conservation Status (IUCN): Not Evaluated (NE)

Commercial importance: Food fish of less importance

Identifying Characters: Body elongated, dorsal and ventral profile equally arched. Broad head with short rounded snout and eye large. Sub terminal mouth, lips thin, upper jaw slightly larger than the lower jaw and upper jaw protractile. Barbels absent. Dorsal fin short with 10 rays (7 branched, 3 simple) and without a spine. Dorsal fin inserted slightly anterior to pelvic fin origin, and nearer to snout tip than caudal fin base. Lateral line completes with 40 to 42 scales.

Garra lamta (Hamilton-Buchanan)



Synonyms: *Cyprinus (Garra) lamta*, *Discognathus lamta*, *Garra prashadi*

Common Name: Lamta garra (English)

Local name: Ghorpola, Chaoksi (West Bengal)

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: Food fish of high value due to its fat contents.

Identifying Characters: Undersurface of the body flattened. Head short bluntly pointed and mental disc small but well developed. Snout rounded with a deep transverse groove. Snout covered with horny tubercles. Two pairs of short barbels (maxillary and rostral). Pectoral fin longer than head with 13 rays (12 branched). Caudal fin deeply emarginated. Lateral line with 31 to 34 scales. Body with a broad lateral band from gill opening to the caudal fin base; caudal fin with an oblique black bar on its lower lobe.

Other information: Inhabits streams and lakes with rocky bottom. This species recorded from Ramgarh site and is an omnivorous fish.

Labeo angra (Hamilton-Buchanan)

Synonyms: *Cyprinus angra*, *Labeo (Morulius) prox. chrysophekadion*

Common Name: Angra labeo (English)

Local name: Not known.

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: Food fish of less importance

Identifying Characters: Dorsal profile of the body more convex than ventral profile. Snout with a distinct lateral lobe on each side. Snout overhanging mouth, mouth small, lips continuous and fringed. A pair of short maxillary barbels. Dorsal fin with 12 to 13 rays, branched rays 10). Lateral line with 42 scales. Body with a black stripe along flanks from eye to caudal fin.

Other information: Inhabits running rivers and large water bodies. Species recorded from Ashis Nagar site of river Damodar.

Labeo bata (Hamilton-Buchanan)

Synonyms: *Cyprinus bata*.

Common Name: Bata labeo (English),

Local name: Bata, Bhangambata (West Bengal)

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: Important food fish of high market value

Identifying Characters: Mouth inferior, lips thin and continuous, a small tubercle inside lower jaw above mandibular symphysis. Dorsal fin with 11 to 14 rays (branched rays 9 to 10). One pair of minute maxillary barbels, not easily seen. Lateral line scales 37 to 40. Young ones often with few irregular black spots on anterior scales of lateral line.

Other information: Inhabits freshwater rivers and lakes. The species recorded from Ramgarh, Panchet Namomezia, Ashis Nagar, Randiha, Burnpur, Burdwan and Jamalpur sites of river Damodar.



Labeo boga (Hamilton-Buchanan)



Synonyms: *Cyprinus boga*, *Cyprinus falcatus*.

Common Name: Boga labeo (English),

Local name: Bogabata, Bangan (West Bengal),

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: Minor with less important food fish

Identifying Characters: Mouth narrow, lips thick, a thin horny layer of cartilage to inner surface of lower lip. Dorsal fin with 9 to 10 branched rays (total rays 11 to 13). One pair of minute maxillary barbels. Lateral line scales 37 to 39.

Other information: Is a herbivorous fish species found in fresh water rivers. The fish species was collected from Randiha site of the river.

Labeo calbasu (Hamilton-Buchanan)



Synonyms: *Cyprinus calbasu*.

Common Name: Kalbasu, Black rohu (English)

Local name: Kalbasu, Kalbose, Kundu (West Bengal)

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: Important food fish.

Identifying Characters: Body strong and deep, mouth inferior, lips thick and fringed, lower jaw more thickened. Two pairs of barbels (rostral and maxillary). Dorsal fin (16 to 20 rays) with a long base, branched dorsal rays 13 to 16. Lateral line scales 40 to 44. Easily distinguished from the very dark colour of its body.

Other information: Inhabits rivers and ponds in slow-moving waters. The species recorded from Panchet, Namomezia, Ashis Nagar, Randiha and Jamalpur sites of the river. Feeds on plants, small insects and detritus.

***Labeo dyocheilus* (McClelland)**

Synonyms: *Cyprinus* (*Labeo*) *dyocheilus*, *Labeo dyochilus*, *Labeo dyocheilus pakistanicus*

Common Name: Brahmaputra labeo (English)

Local name: Not known

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: Important food and sport fish.

Identifying Characters: Snout conical, with a distinct lateral lobe, tubercles on snout prominent. Mouth inferior, lips thick, not fringed. One pair of short maxillary barbels. Dorsal fin with 12 to 14 fin rays (branched rays 10-11).

Other information: Prefer fast flowing water with rocky bottom. Feeds on small insects and benthic invertebrates. The fish species collected from Burnpur site of river Damodar.

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

Synonyms: *Cyprinus rohita*, *Labeo horai*.

Common Name: Rohu (English),

Local Name: Rohu, Riu, Ruee, Rohu (West Bengal),

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: This graceful elegant priced fish is one of the Indian major carp and excellent in eating.

Identifying Characters: Snout thick, mouth small and lower. Lips thick and fringed with a inner fold to each lip. Branched dorsal rays 12 to 14. (total dorsal fin rays 15 to 18). Lateral line scales 40 to 44. One pair of small, thin maxillary barbels concealed in lateral grooves.

Other information: The species recorded from Panchet, Namomezia, Ashis Nagar, Randiha and Jamalpur sites of the river. Feeds on detritus, plants and invertebrates.

Osteobrama cotio cotio (Hamilton-Buchanan)

Synonyms: *Cyprinus cotio*, *Rohtee cotio*.

Common Name: Cotio (English)

Local Name: Goonta, Koti, Maura (West Bengal)

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: One of the trash fish and no interest to fisheries.

Identifying Characters: Body deep and compressed. Profile over nape concave. Snout bluntly rounded eyes large. Abdominal edge keeled only between pelvic and anal fins. Rounded abdominal edge in front of pelvic fins. Mouth small and directed upwards. Upper jaw slightly longer. Barbels absent. Dorsal fin spine weak and serrated. Anal fin long with 29 to 36 rays. Scales small, lateral line with 55 to 70 scales.

Other information: Inhabits freshwater rivers, ponds, ditches and lakes. This fish species recorded from Panchet, Namomezia, Ashis Nagar and Jamalpur sites.

Puntius conchonius (Hamilton-Buchanan)

Synonyms: *Cyprinus conchonius*, *Barbus conchonius*.

Common Name: Rosy barb, Red barb (English)

Local Name: Kunchon-pungti (West Bengal)

Conservation Status (IUCN): Not Evaluated (NE)

Commercial importance: One of the hardiest potential aquarium fish and can be put in aquarium with other small fishes.

Identifying Characters: Body deep, barbels absent. Dorsal fin spine osseous, moderately strong and serrated. Lateral line incomplete. A large round black spot over posterior portion of anal fin, dorsal fin with its upper half black.

Other information: Generally inhabits lakes and fast flowing streams. One of the hardiest barb

with attractive colour combination during spawning season. Generally feeds on worms, crustaceans, insects and decayed plant matters. The fish species collected from Namomezia, Ashis Nagar, Burnpur and Jamalpur sites of the river.

Puntius sarana (Hamilton-Buchanan)



Synonyms: *Cyprinus sarana*, *Barbus sarana*, *Barbus chrysopoma*, *Puntius saberi*

Common Name: Olive barb (English)

Local Name: Sarana, Saral-punti, Swarna-punti, Kurti (West Bengal)

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: This barb is quiet good food fish in some parts of the country. Small fish have limited demand in the aquarium trade.

Identifying Characters: Lips thin, no horny covering on inner side of lips two pairs of barbels (maxillary & rostral). Last un-branched ray of dorsal fin osseous, strong and finely serrated posteriorly. Lateral line completes with 30 to 33 scales. A blotch on lateral line before base of caudal fin.

Other information: Occurs in rivers, streams, lakes and backwaters. Feeds on aquatic insects, fish, algae and shrimps. The fish sample was recorded from Panchet and Namomezia sites of the river.

Puntius sophore (Hamilton-Buchanan)



Synonyms: *Cyprinus sophore*, *Barbus stigma*, *Barbus sophore*, *Barbus chrysopterus*, *Barbus annandalei*, *Barbus carletoni*, *Puntius carletoni*.

Common Name: Spotfin swamp barb (English)

Local Name: Kunchon punghti (West Bengal)

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: Consider as food fish in W. B., but usually reared in domestic aquarium

Identifying Characters: Barbels absent. Last unbranched ray of dorsal fin osseous and smooth. Lateral line completes with 22 to 27 scales. A deep black round blotch at base of caudal fin, a similar black blotch on central part of dorsal fin; often with scarlet lateral band.

Other information: Inhabits rivers and lakes in plains and sub mountain regions. Prefers substrate consisting of sand, mud, gravel, pebble, cobble, and boulders. It is a omnivorous species. The fish species recorded from Panchet, Namomezia, Ashis Nagar and Randiha sites of river Damodar.

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



Synonyms: *Cyprinus terio*, *Barbus terio*

Common Name: One spot barb (English)

Local Name: Teri pungti (West Bengal)

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: One of the potential fish in aquarium trade

Identifying Characters: Body fairly deep and compressed. Barbel absent. Dorsal fin with 11 fins rays. (8 unbranched). Last unbranched dorsal fin ray osseous, moderately to very strong and smooth. Lateral line very short, 22 to 23 scales in lateral line series. Dorsal side green, flanks silvery and belly whitish. A black blotch over anal fin and sometimes an oval black spot at base of caudal fin.

Other information: Inhabits rivers and large water bodies in plains. Prefers substrate consisting of sand, mud, gravel, pebble. Fish species found in Panchet, Namomezia and Ashis Nagar sites of river Damodar.

***Puntius ticto* (Hamilton-Buchanan)**



Synonyms: *Cyprinus ticto*, *Puntius punctatus*, *Barbus ticto*, *Barbus punctatus*, *Barbus stoliczkanus*.

Common Name: Ticto barb, Firefin barb, Two-spot barb (English).

Local Name: Kuchon pungti (West Bengal)

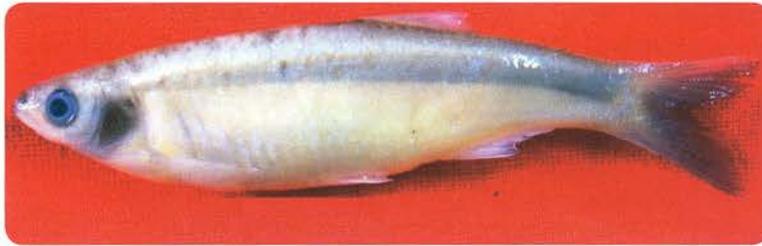
Conservation Status (IUCN): Least Concern (LC)

Commercial importance: One of the potential aquarium fish.

Identifying Characters: Body elongated. Mouth terminal and small. Barbels absent. Dorsal fin inserted slightly posterior to pelvic fin origin. Last unbranched dorsal fin ray osseous, fairly strong and serrated at its posterior edge. Lateral line usually complete, often ceases after 6 to 8 scales; 23 to 25 scales in lateral series. Body often with two lateral spots, the 1st one extending over 3rd and 4th scales and 2nd one over 18th and 19th scales of lateral line. Dorsal fin in males with red border.

Other information: Found in still, shallow, marginal waters of tanks and rivers, mostly with muddy bottoms. Feeds on crustaceans, insects, plankton and other benthic invertebrates. The fish species recorded from Ramgarh, Panchet, Namomezia, Ashis Nagar and Jamalpur sites of the river.

Bengala elanga (Hamilton-Buchanan)



Synonyms: *Cyprinus elanga*, *Rasbora (Megaraborsa) elanga*

Common Name: Bengala barb (English).

Local Name: Elanga (West Bengal)

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: No interest to commercial trade.

Identifying Characters: Body elongate, slender and abdomen rounded. Mouth small and lower jaw prominent with a symphysial process. A pair of short rostral barbel present. Dorsal fin inserted behind pelvic fin base; dorsal fin with 9 rays (7branched). Pectoral fin as long as head. Lateral line with 40 to 44 scales. Caudal fin forked. Body silvery, practically no marking on body and fins. Maximum size: 15 cm.

Other information: Inhabits streams and rivers. Fish specimen recorded from Namomezia, Ashis Nagar and Burdwan sites of the river.

Rasbora rasbora (Hamilton-Buchanan)

Synonyms: *Cyprinus rasbora*, *Rasbora buchanani*, *Rasbora rasbora* var. *kobonensis*

Common Name: Gangetic scissortail rasbora (English)

Local Name: Not known

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: One of the popular potential aquarium fish.

Identifying Characters: Barbels absent, lower jaw with a symphyseal process. Lateral line complete, concave with 26 to 29 scales. Origin of dorsal fin behind pelvic fins. Caudal deeply emerginate. A rainbow like lateral stripe from head to base of caudal fin. A very popular aquarium fish.

Other information: Inhabits hill streams and running clear water. Recorded from Panchet, Ashish Nagar and Burnpur sites of the river.

Salmophasia bacaila (Hamilton-Buchanan)

Synonyms: *Cyprinus bacaila*, *Chela bacaila*.

Common Name: Large razorbelly minnow (English)

Local Name: Jellahri Gangchela, Chela (West Bengal)

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: One of the important food fish

Identifying Characters: Body elongated and strongly compressed, abdominal keel not hardened. Dorsal fin inserted well behind pelvic fins and in advance of anal fin. Scales very small, lateral line decurved with 86 to 110 scales. Anal fin with 10 to 13 branched rays.

Other information: Usually found in slow running streams, rivers, ponds, beels and inundated fields. A surface feeder on larvae and insects. Fish species collected from Panchet, Ramgarh, Namomezia, Ashis Nagar, Randiha, Burnpur, Burdwan and Jamalpur sites of river Damodar.

Salmophasia phulo (Hamilton-Buchanan)

Synonyms: *Cyprinus phulo*, *Chela phulo*, *Salmostoma phulo phulo*

Common Name: Finescale razorbelly minnow (English)

Local Name: Phul chela (West Bengal)

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: Food fish of less importance

Identifying Characters: Body elongated and greatly compressed. Lower jaw with a well developed symphyisial knob. Dorsal fin inserted opposite to origin of anal fin. Abdominal keel not harden. Scales small, lateral line curves downwards with 99 to 112 scales.

Other information: Inhabits streams, ponds, beels and inundated fields. The species recorded from Panchet, Ashis Nagar and Randiha sites of river.

Securicula gora (Hamilton-Buchanan)

Synonyms: *Cyprinus gora*, *Leuciscus cultellus*, *Chela gora*, *Oxygaster gora*.

Common Name: Gora chela (English)

Local Name: Ghora-chela (West Bengal)

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: Trash fish and no interest to fishery, consumed by people in some places

Identifying Characters: Body more or less elongated and compressed. Cleft of mouth reaching to anterior edge of eye. Edge of abdomen with a sharp keel extends from below operculum to anal fin. Short dorsal fin inserted slightly anterior to origin of anal fin. Scales small, lateral line complete and curved downwards with 120-160 scales.

Other information: Inhabits tanks, beels, canals and rivers. It is a surface feeder species and feeds on insects larvae and crustaceans. The species collected from Panchet, Namomezia and Randiha, sites of river Damodar.

Family: Balitoridae

- ▶ Body depressed barbels three to more pairs.
- ▶ Paired fins inserted horizontally.

- ▶ Pectoral fin with at least two undivided rays.

Nemacheilus botia (Hamilton-Buchanan)



Synonyms: *Cobitis botia*, *Botia nebulosa*, *Nemachilus botius*, *Nemachilus mackenziei*, *Noemacheilus botia*

Common Name: Not known

Local Name: Balichata (West Bengal)

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: Potential aquarium fish.

Identifying Characters: Body slender, almost cylindrical. Mouth semicircular; lips thick, fleshy and papillated, upper lip uninterrupted, lower lip interrupted in middle. Barbels well developed. Dorsal fin inserted nearer to snout-tip than caudal base, dorsal with 12-14 fin rays (9 to 11 branched). Caudal fin slightly emarginated. Reduced number of scales on breast. 12 to 16 blackish vertical cross bands descending below level of lateral line from dorsal side of the body, the cross bands broken up irregularly in patches. Caudal fin with 5 to 7 'v' shaped dark bands and a ocellus on upper caudal fin base.

Other information: Prefers hilly streams of fast flowing water and rivers with rocky bottom. Species recorded from Ashis Nagar site of river Damodar.

Family: Cobitidae

- ▶ Head and body compressed, not flattened below; worm-like to fusiform.
- ▶ Mouth subterminal to inferior; lips thick, fleshy and papillated; no teeth on jaws and palate, but with a single row of pharyngeal teeth.
- ▶ Three pairs of barbels usually present.
- ▶ Airbladder enclosed in an osseous capsule, its posterior part small or vestigial.

Lepidocephalus guntea (Hamilton-Buchanan)



Synonyms: *Cobitis guntea*, *Cobitis balgara*, *Lepidocephalichthys guntea*, *Lepidocephalus octocirrhus*, *Lepidocephalus guntea birmanicus*, *Lepidocephalus dibruensis*.

Common Name: Guntea loach (English)

Local Name: Gunte (West Bengal)

Conservation Status (IUCN): Not Evaluated (NE)

Commercial importance: One of the potential aquarium fish

Identifying Characters: Mouth inferior. Barbels 3 pairs. Short dorsal fin inserted posterior to origin of pelvic fins, and nearer to caudal base than to snout tip. Dorsal fin with 8 to 10 rays (6 to 7 branched). Caudal fin truncated. Scales small, sides and ventral side of head covered with small scales. In juvenile stage, a delicate yellowish stripe extends from snout to caudal base, and there are 10 to 12 black blotches along this stripe grow in size and fuse with one another to form a continuous dark band with age. Feeds on insects and decayed benthic materials.

Other information: Inhabits flowing or even clear standing waters. Recorded from Burnpur site of the river.

Order: Siluriformes

- ▶ Body elongate and compressed, either naked or covered with bony plates.
- ▶ Eyes usually small.
- ▶ Maxilla usually rudimentary and serve as a support for a barbel.
- ▶ Spines often present at the front of the dorsal and pectoral fins.
- ▶ Branchiostegal rays 4 to 17; no pseudobranchiae

Family: Bagridae

- ▶ Body naked, rather elongate and compressed posteriorly.
- ▶ Gill-openings wide; gill-membranes free from each other and also from the isthmus.
- ▶ Mouth usually somewhat subterminal; teeth on premaxillaries, mandible and prevomer.
- ▶ Barbels generally four (three in Rita) well-developed pairs.
- ▶ Pectoral fin with a strong serrated spine.
- ▶ Vertebrae 34 to 57.

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



Synonyms: *Pimelodus cavasius*, *Macrones cavasius*, *Mystus mukherjii*.

Common Name: Gangetic Mystus (English),

Local Name: Tengra, Kabasi-tengra (West Bengal)

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: Potential priced food fish.

Identifying Characters: Maxillary barbels very long extend posteriorly to beyond caudal fin base. Upper lobe of caudal fin much longer than lower lobe. A dark spot on base of dorsal spine.

Other information: Inhabits freshwater and tidal rivers and lakes; also beels, ponds, ditches and inundated fields. This carnivorous fish species recorded from Ramgarh, Panchet, Namomezia, Ashis Nagar, Burdwan and Jamalpur sites of river Damodar.

***Mystus vittatus* (Bloch)**



Synonyms: *Silurus vittatus*, *Macrones vittatus*, *Mystus (Mystus) vittatus vittatus*.

Common Name: Striped dwarf catfish (English)

Local Name: Tengra (West Bengal)

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: Small cat fish considered as food fish as well as aquarium fish.

Identifying Characters: Adipose dorsal fin small or short with considerable inter-space between dorsal fin and adipose fin. Body with three or four longitudinal colour bands above and below the lateral line. A narrow dusky shoulder spot often present.

Other information: Inhabits standing and flowing waters; occurring within the tidal influence also. Usually found among marginal vegetation in lakes and swamps with a mud substrate. This carnivorous species collected from Panchet and Ashis Nagar sites of river Damodar.

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



Synonyms: *Pimelodus aor*, *Macrones aor*, *Mystus (Sperata) aor*.

Common Name: Long-whiskeerd catfish (English),

Local Name: Aar-tengara (West Bengal),

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: This common giant cat fish is an important food and game fish.

Identifying Characters: Anterior margin of snout rounded four pairs of barbels (1 pair maxillary, 1 pair nasal and 2 pairs mandibular). Maxillary barbels extend to the end of anal or caudal base or beyond. Pectoral spine denticulate posteriorly, pectoral fin rays 10 or 11. Caudal fin deeply forked with pointed lobes, upper longer; caudal fin with 19 rays.

Other information: Inhabits freshwater rivers, ponds, lake, channels and reservoirs. Feeds on small fishes and worms. The species recorded from Panchet, Namomezia, Ashis Nagar, Sadar and Jamalpur sites of river Damodar.

***Sperata seenghala* (Sykes)**



Synonyms: *Platystoma seenghala*, *Macrones seenghala*, *Mystus (Sperata) seenghala*.

Common Name: Giant river- catfish, Tengara , Seenghari (English),

Local Name: Arr-tengara, Guji (West Bengal)

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: Important food and game fish, popular to anglers also.

Identifying Characters: Outer margin of snout trimmed. Barbels four pairs, maxillary pair extend to the base of pelvics or a little beyond. Pectoral spine stronger than dorsal and denticulated posteriorly, pectoral fin rays 8 or 9. Caudal fin rays 19 to 21.

Other information: Found in rivers, canals, beels, ditches, inundated fields, etc. It is a carnivorous species. The fish species collected from Panchet, Namomezia, Ashis Nagar and Jamalpur sites of the river.

Family: Siluridae

- ▶ Body elongate and compressed.
- ▶ Head depressed.
- ▶ Nostrils fairly close to each other; anterior nostrils tubular, posterior pair valved.
- ▶ Gill-openings very wide; branchiostegal membranes more or less broadly overlapping, with 8 to 21 branchiostegal rays.
- ▶ Anal fin very long (with up to 93 rays), ends shortly before anal fin.
- ▶ Skin smooth; abdominal cavity restricted; vertebrae 52 to 74.

***Ompok pabda* (Hamilton-Buchanan)**



Synonyms: *Silurus pabda*, *Callichrous pabda*,

Common Name: Pabdah catfish (English)

Local Name: Pabda, Pava (West Bengal)



Conservation Status (IUCN): Least Concern (LC)

Commercial importance: One of the relished food fish.

Identifying Characters: Gape of mouth not extending beyond eye. Maxillary barbels long extend to middle or tip of pectoral fin. Dorsal fin short with 4 to 5 rays, spine absent. Pelvic fin (7 to 9 rays) not reaching anal fin origin. Anal fin long with 50 to 56 rays.

Other information: Inhabits rivers, beels and ponds. The species feeds on small insects, worms and benthic invertebrates. The fish species recorded from Panchet site of the river.

***Wallago attu* (Schneider)**



Synonyms: *Silurus attu*, *Wallagonia attu*, *Wallagu attu valeyia*.

Common Name: Boal (English),

Local Name: Boal (West Bengal)

Conservation Status (IUCN): Near Threatened (NT)

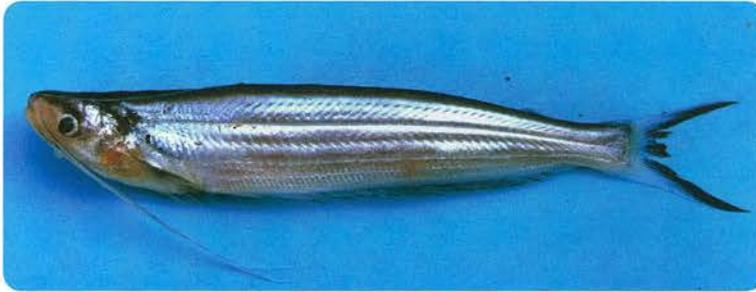
Commercial importance: Potential game fish and can be easily taken on a hook. Palatable food fish especially in North India.

Identifying Characters: Gape of mouth wide and very long reaching beyond eye posteriorly. Dorsal fin short with 5 rays and devoid of spine. Barbels two pairs, maxillary barbels extending beyond origin of anal fin. Upper lobe of caudal fin longer.

Other information: Found in large rivers, lakes and tanks. Thrives in heels with grassy margin mostly hides under holes in river banks and canals. A large voracious predatory cat fish. Species collected from Panchet, Namomezia, Ashis Nagar, Randiha, Burnpur and Jamalpur sites during survey.

Family: Schilbeidae

- ▶ Body elongate and compressed.
- ▶ Head tapering, conical to slightly compressed.
- ▶ Eyes large, lateral or ventrolaterally directed.
- ▶ Barbels two to four pairs, usually elongate (vestigial or absent in *Silonia*); nasal barbels generally present (except in *Silonia*).
- ▶ Gill-openings very wide; gill-membranes free from isthmus.
- ▶ Anal fin very long, not confluent with caudal fin.
- ▶ Branchiostegal rays 5 to 12.
- ▶ Vertebrae 47 to 58.

Ailia coila (Hamilton-Buchanan)

Synonyms: *Mulapterurus coila*,

Common Name: Gangetic ailia (English)

Local Name: Kajoli, Kajuli vacha (West Bengal)

Conservation Status (IUCN): Near Threatened (NT)

Commercial importance: Esteemed food fish particularly in North Bengal.

Identifying Characters: Rayed dorsal fin absent. Barbels 4 pairs, well developed. Adipose dorsal fin small. Anal fin very long with 58 to 75 rays.

Other information: Inhabits rivers and large open waters. Feeds on small insects and worms. The species recorded from the upper-middle stretches of the river in Panchet and Ashis Nagar sites.

Clupisoma garua (Hamilton-Buchanan)

Synonyms: *Silurus garua*, *Pseudeutropius garua*.

Common Name: Garua Bachcha (English), Buchua (U.P.).

Local Name: Garua, Ghero, Kocha (West Bengal)

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: Important food and game fish.

Identifying Characters: Abdominal edge keeled between pelvic fins and vent. Barbels 4 pairs, maxillary barbels extend to base of pelvic fins in adults. Adipose dorsal fin absent. Anal fin with 29 to 36 branched rays.

Other information: Large fresh water and tidal rivers. Feeds on insects, shrimps, small fish and other crustaceans. The species recorded from the upper-middle stretches of the river Damodar in Ramgarh, Panchet and Ashis Nagar sites.



***Eutropiichthys murius* (Hamilton-Buchanan)**



Synonyms: *Pimelodus murius*, *Pseudeutropius murius*, *Pseudeutropius murius batarensis*.

Common Name: Murius vacha (Englis

Local Name: Motusi, Muribache (West Bengal)

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: A priced and fairly relished food fish for its rich oil content

Identifying Characters: Cleft of mouth extends to front border of orbit. Maxillary barbels extend beyond base of pectoral fin. Nasal barbels extend to hind border of orbit. Branchiostegal rays 5.

Other information: Inhabit rivers, streams and canals. Feeds on other small fish and crustaceans. The fish species recorded from the middle-lower stretches of river Damodar in Ashis Nagar site.

Family: Sisoridae

- ▶ Nostrils close to each other.
- ▶ Barbels 4 pairs (6 pairs in genus Sisor), a pair of distinct nasal barbels present.
- ▶ An adhesive apparatus in the thoracic region often present.
- ▶ Dorsal and pectoral spines strong.

***Bagarius bagarius* (Hamilton-Buchanan)**



Synonyms: *Pimelodus bagarius*,

Common Name: Gangetic Goonch (English)

Local Name: Baghari, Baghaar (West Bengal)

Conservation Status (IUCN): Near Threatened (NT)

Commercial importance: Important sport and food fish

Identifying Characters: Body elongated, head depressed and body covered with keratinized skin. Mouth inferior, upper jaw longer. Barbels 4 pairs, maxillary pair with stiff and broad bases. Dorsal spine smooth. Pelvic fin inserted anterior to base of last dorsal fin rays. Adipose fin inserted posterior to anal fin origin. Pectoral fin rays 9 to 12. Body with large, irregular brown and black blotches or cross bands.

Other information: Inhabits large rivers and Ganga basins. A highly ferocious carnivorous fish species. Fish species collected from Panchet, Namomezia, Randiha and Jamalpur sites of river Damodar.

Bagarius yarrelli Sykes



Synonyms: *Bagarius bagarius*,

Common Name: Goonch (English)

Local Name: Baghaar (West Bengal)

Conservation Status (IUCN): Near Threatened (NT)

Commercial importance: Important sport and food fish

Identifying Characters: Head and body covered by heavily keratinized skin, ventrally flattened and depressed. Barbels 4 pairs, maxillary pair with stiff and broad bases, extends to pectoral fin base. Adhesive apparatus on throat absent. Adipose fin short, inserted anterior to or on origin of anal fin. Pelvic fin short, inserted posterior to base of last dorsal fin ray. Pectoral fin rays 11 to 14.

Other information: Inhabits the Ganga basins rivers. The carnivorous fish species was collected from Panchet site of the river.

Gagata cenia (Hamilton-Buchanan)



Synonyms: *Pimelodus cenia*, *Gagata youssoufi*

Common Name: Indian gagata (English)

Local Name: Jungla (West Bengal)

Conservation Status (IUCN): Near Threatened (NT)

Commercial importance: Considered as food fish.

Identifying Characters: Snout tip acutely pointed with a distinct notch anteriorly. Maxillary barbels shorter than head length and nasal barbels minute. Dorsal fin spine short and strong, finely serrated along anterior edge. Pelvic fins extend usually to vent. Body with four dark blotches in young stage. Caudal fin with square or round spot on each lobe.

Other information: Inhabits fresh water rivers. Carnivore species. The fish species recorded from Ashis Nagar site of river Damodar.

Family: Clariidae

- ▶ Head covered with heavily ossified plates.
- ▶ Dorsal and anal fin long, dorsal without spine.
- ▶ Nasal barbel present.
- ▶ Adipose dorsal fin absent.

***Clarias batrachus* (Linnaeus)**



Synonyms: *Silurus batrachus*, *Clarias magur*, *Clarias jagur*, *Clarias assamensis*

Common Name: Magur (English),

Local Name: Magur (West Bengal),

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: It is one of the highly priced food fish with nourishing properties. Also practice in aquaculture, aquaria.

Identifying Characters: 4 pairs of barbels, maxillary pair large and extend beyond base of pectoral fin. Dorsal fin long with 70 to 77 rays. Anal fin with 45 to 58 rays. Pectoral spine strong and serrated on both sides.

Other information: Found in lowland streams, swamps, ponds, ditches, paddy field, and pools left in low spots after rivers have been in flood. Feeds on insects larvae, earthworms, shells, shrimps, small fishes and debris. The fish species collected from the lower-middle stretches of river Damodar in Panchet.

Family: Heteropneustidae

- ▶ Body elongate and compressed.
- ▶ Mouth small, terminal and transverse; four well-developed pairs (nasal, maxillary

and two mandibular) pairs of barbels.

- ▶ Nostrils widely separated. Gill-openings wide; gill-membranes separated by a deep notch, free from isthmus.
- ▶ Dorsal fin short-based, devoid of a spine; adipose fin absent or represented by a low ridge.
- ▶ Anal fin extremely long (60 to 79 rays), just reaching to or confluent with caudal fin.
- ▶ Pectoral fin with a strong osseous spine; pelvic fins well-developed, with 6 rays.
- ▶ Airbladder very small.
- ▶ Skin quite naked.
- ▶ Branchiostegal rays 7.

Heteropneustes fossilis (Bloch)



Synonyms: *Silurus fossilis*, *Saccobranchnus fossilis*.

Common Name: Stringing catfish (English),

Local Name: Singhi (West Bengal),

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: Highly valued food fish and practice in aquaculture.

Identifying Characters: 4 pairs of barbels, maxillary pair large and extend beyond base of pectoral fin. Dorsal fin long with 70 to 77 rays. Anal fin with 45 to 58 rays. Pectoral spine strong and serrated on both sides.

Other information: Found mainly in ponds, ditches, swamps and marshes, but sometimes occurs in muddy rivers. It is an omnivorous species. This fish sample collected from lower-middle stretches of river Damodar in Namomezia and Ashis Nagar sites.

Order: Cyprinodontiformes

- ▶ Opercular and preopercular margin without spines.
- ▶ Structure of upper jaw unique, the rostral cartilage separate from the premaxillae.
- ▶ No fin spines.
- ▶ Single dorsal fin.
- ▶ Ctenoid scales rare.
- ▶ Branchiostegal rays 4 to 15.
- ▶ Swimbladder physoclastic.
- ▶ Eggs large and demersal, provided with adhesive filaments.

Family: Belonidae

- ▶ Body elongate, subcylindrical or laterally compressed.
- ▶ Nasal organ a pit with protruding tentacle.
- ▶ Pectoral fins short, inserted high on sides; pelvic fins abdominal, with six soft rays.
- ▶ Scales small, cycloid and easily detachable.

***Xenentodon cancila* (Hamilton-Buchanan)**

Synonyms: *Esox cancila*, *Esox (Belone) hindostonicus*, *Belone cancila*.

Common Name: Spottail needlefish (English)

Local Name: Kankley (West Bengal)

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: Minor food fish and potential aquarium fish.

Identifying Characters: Body very elongate. Both jaws prolonged into a beak. Dorsal fin inserted nearly opposite to anal fin, dorsal fin with 15 to 18 rays. Anal with 16 to 18 rays. Pelvic fin small, inserted nearer to caudal fin. Lateral line on posterior half of the body. Caudal fin truncate.

Other information: Inhabits freshwaters, primarily rivers. The fish species recorded from the upper and middle-lower stretches of river Damodar in Panchet, Namomezia, Ashis Nagar, Randiha, Burnpur and Jamalpur sites.

Family: Aplocheilidae

- ▶ Upper jaw protrusible.
- ▶ Dorsal fin short, inserted in the posterior part of the body.
- ▶ Pelvic fin bases inserted close together.
- ▶ Lateral line absent on the body.

***Aplocheilus panchax* (Hamilton-Buchanan)**

Synonyms: *Esox panchax*, *Haplochilus panchax*.

Common Name: Panchax minnow, Blue panchax (English),

Local Name: Panchoke, Trichoke, Pangchax, Dhenochune (West Bengal)

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: It is a larvivorous fish and its utility lies in mosquito control.

Identifying Characters: Mouth terminal. Cleft of mouth wide, not extending to front border of orbit. Dorsal fin inserted behind posterior end of anal fin, dorsal with 8 soft rays. Anal fin square shaped with 15 to 16 rays. Caudal fin rounded. Scales moderately large, lateral line absent on the body. It is a larvivorous fish and useful for mosquito control.

Other information: Found in clear shallow and brackish waters at low altitudes. Feeds on planktons and small insects. The fish sample collected from Panchet site of river Damodar.

Order: Perciformes

- ▶ Most perciformes have the following characters in common: dorsal, anal and pelvic fin spines present. Pelvic fin with a spine and five or fewer soft-rays (usually 5).
- ▶ Caudal fin skeleton with five or fewer hypurals.
- ▶ No free second ural centrum.
- ▶ Caudal fin with 17 or fewer principal rays.
- ▶ No adipose fin.
- ▶ Scales usually ctenoid; gills 4, a slit behind the last; and branchiostegal rays 7 or fewer.

Family: Ambassidae

- ▶ Body oblong and compressed.
- ▶ Mouth moderate to large, slightly protrusible; maxilla naked; no supramaxilla.
- ▶ Dorsal fin deeply divided before last spine, with 7 or 8 spines and 8 to 12 soft rays; anal fin with 3 spines and 8 to 17 soft rays.
- ▶ Caudal fin forked, with 15 branched rays.
- ▶ Scales thin and cycloid, rather deciduous; lateral line complete or interrupted.
- ▶ Gill membranes separate; branchiostegal rays 6.
- ▶ Swimbladder present.

***Chanda nama* (Hamilton-Buchanan)**



Synonyms: *Ambassis nama*.

Common Name: Elongate glass-perchlet (English),

Local Name: Chanda, Namchanda (West Bengal)

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: Minor commercial and potential aquarium fish.

Identifying Characters: Body ovate, strongly compressed, dorsal and abdominal profile convex.

Mouth large, lower jaw prominent first dorsal with 7 spines and 2nd dorsal with one spine and 15 to 17 rays; 2nd spine of 1st dorsal longest. Anal with 3 spines. Caudal fin forked. Lateral line complete with 100 to 107 scales.

Other information: Inhabits fresh and brackish waters, both in lentic and lotic waters, clear streams, canals, beels, ponds, and inundated paddy fields. Feeds on small insects and worms. This species collected from Panchet, Namomezia, Ashis Nagar, Randiha, Burnpur and Burdwan sites of the river.

***Pseudambassis ranga* (Hamilton-Buchanan)**



Synonyms: *Chanda ranga*, *Ambassis ranga*.

Common Name: Indian glassy fish (English)

Local Name: Ranga chanda (West Bengal)

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: Minor commercial and important aquarium fish.

Identifying Characters: Body oblong, deeply compressed. 1st dorsal with 7 spines and 2nd dorsal with one spine and 11 to 14 rays. Mouth oblique, lower jaw more or less equals to upper jaw. Caudal fin forked. Lateral line with 47 to 63 scales.

Other information: Found in sluggish and standing water. An omnivorous species. The fish species collected from the lower-middle stretches of river Damodar in Panchet, Namomezia and Ashis Nagar sites.

Family: Nandidae

- ▶ Body oblong and laterally compressed.
- ▶ Mouth usually large and protrusible; teeth villiform on jaws and palate.
- ▶ Dorsal fin large, inserted above pectoral fin base, the spinous and soft-rayed parts continuous; anal fin with 3 or 4 spines and 6 to 9 soft rays.
- ▶ Pelvic fins thoracic, without scaly axillary process.
- ▶ Caudal fin rounded.
- ▶ Branchiostegal rays six.

Badis badis (Hamilton-Buchanan)

Synonyms: *Labrus badis*, *Badis buchanani*, *Badis dario*, *Badis badis burmanicus*, *Badis badis assamenis*.

Common Name: Badis, Dwarf chameleon fish (English).

Local Name: Botkoi, Bhedo, Darhi (West Bengal)

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: Important aquarium fish.

Identifying Characters: Mouth small, lower jaw longer, oblique and slightly protrusible. Operculum distinctly triangular, its posterior corner with a prominent spine. Dorsal fin large with 16 to 18 slender and short spines and 7 to 10 rays. Anal fin with 3 short spines and 6 to 8 rays. Caudal fin rounded. Lateral line interrupted; 26 to 30 scales in longitudinal series. Body with a series of black and dirty red alternate bands in adult fish. A bluish black spot on shoulder, another on opercle and a third near base of caudal fin.

Other information: Inhabits freshwaters in rivers, ponds and ditches. Feeds on small insects and other benthic invertebrates. The fish species collected from lower-middle stretches of river Damodar in Panchet and Ashis Nagar sites.

Nandus nandus (Hamilton-Buchanan)

Synonyms: *Coius nandus*, *Nandus marmoratus*.

Common Name: Mottled Nandus (English),

Local Name: Nadosh, Bheda (West Bengal)

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: One of the important high priced food fish particularly in West Bengal.

Identifying Characters: Mouth very large, highly protrusible, cleft deep, maxillae reach hind edge of orbit. Operculum triangular with a prominent spine. A single notched dorsal with 12 to 14 spines and 11 to 13 rays, spinous part longer than soft part; dorsal spines strong. Three anal spines. Lateral line interrupted; 46 to 57 scales in lateral line series. Three broad patchy



bands over body, a dusky blotch on caudal fin base.

Other information: Thrives in fresh and brackish waters. This carnivorous fish species was collected from Ashis Nagar site of the river.

Family: Cichlidae

- ▶ Body moderately deep and compressed.
- ▶ Dorsal fin single, the spinous and soft-rayed parts continuous.
- ▶ Anal fin with spines.
- ▶ Lateral line interrupted.

***Oreochromis niloticus* (Peters)**



Synonyms: *Tilapia crassispina*, *Perca nilotica*, *Chromis nilotica*

Common Name: Cichlid Tilapia (English)

Local Name: Tilapia (West Bengal)

Conservation Status (IUCN): Not Evaluated (NE)

Commercial importance: Exotic species introduced in Indian waters and presently reared in fresh water ponds. Food fish of less importance.

Identifying Characters: Dorsal fin with 15 to 18 spines and 11 to 13 soft rays. Anal fin with 3 spines and 9 to 11 soft rays. Most distinguishing characteristics is the presence of regular vertical stripes throughout depth of caudal fin. Caudal peduncle depth equals to length. Sides of body with 6 to 9 rather indistinct cross bars.

Other Information: Inhabits brackish and fresh waters. The species has omnivorous feeding habit. This exotic species was collected from Ramgarh, Ashis Nagar, Randiha and Burnpur sites of the river.

Family: Mugilidae

- ▶ Body moderately elongate, cylindrical or slightly compressed.
- ▶ Eyes often partly covered by fatty tissue (adipose eyelid).
- ▶ Mouth small and terminal or inferior, either toothless or has small teeth loosely attached to jaws.
- ▶ Anal fin with 3 spines (2 in young less than 6 cm standard length).
- ▶ Caudal fin moderately forked, emarginate or truncate.
- ▶ Scales fairly large on head and body.
- ▶ Vertebrae 24 to 26.

Rhinomugil corsula (Hamilton-Buchanan)

Synonyms: *Mugil corsula*.

Common Name: Corsula mullet (English)

Local Name: Corsula, Elanga, Kannua (West Bengal)

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: Considered as food fish of less importance. No interest to fishery.

Identifying Characters: Head depressed, concave between eyes. Eyes prominent, bulging and almost on top of head. Adipose eyelids absent. Mouth distinctly ventral. Jaw teeth indistinct. 1st dorsal fin inserted nearer to caudal fin base than to tip of snout. Caudal fin slightly emarginated. Brownish above, silvery below.

Other information: Found in fresh and brackish water. Feeds on small insects, worms and decayed plant materials. The species was collected from Panchet, Namomezia, Ashis Nagar, Burdwan and Jamalpur sites of the river.

Sicamugil cascasia (Hamilton-Buchanan)

Synonyms: *Mugil cascasia*

Common Name: Yellowtail mullet (English)

Local Name: Not known

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: No interest to commercial trade

Identifying Characters: Body short, head dorsally flattened. Eyes large, adipose eyelid absent. Lips thin, teeth absent. Anal fin origin opposite to 2nd dorsal fin origin. Caudal fin forked. Lateral line absent. Yellowish-olive on top of head and greenish-yellow on flanks, belly silvery.

Other Information: Inhabits freshwater rivers. Fish sample recorded from Panchet site of the river.

Family: Gobiidae

- ▶ Pelvic fins when well-developed united, usually forming an adhesive or sucking disc.
- ▶ Body scaled with ctenoid or cycloid scales, often partly or totally absent.

- ▶ Head canals and pores present or absent.
- ▶ Teeth variable in size, generally small and conical, in one to several rows on both jaws.
- ▶ Branchiostegal rays five.

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



Synonyms: *Gobius giuris*, *Gobius gutum*.

Common Name: Tank goby (English)

Local Name: Bele (West Bengal)

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: Contribute minor fisheries and considered as food fish.

Identifying Characters: Body elongate, anteriorly cylindrical and posteriorly compressed. Head depressed, and naked (with scale) between and before eyes. Mouth slightly oblique, lower jaw prominent. Dorsal fins separated, 1st dorsal with 6 weak spines and 2nd dorsal with one spine and 8 to 9 rays. Pelvic fins united forming a disc. One weak anal spine. Lateral line with 21 to 30 scales. Body yellowish-brown with 4 to 5 dark blotches on flank.

Other information: Inhabits primarily freshwater and estuaries. Takes small insects, crustaceans and small fish as a food. The fish species was collected from Panchet, Namomezia, Ashis Nagar, Burnpur, Burdwan and Jamalpur sites of the river.

Family: Anabantidae

- ▶ Body oblong and posteriorly compressed.
- ▶ Operculum and interoperculum serrate with 2 spines.
- ▶ Upper jaw weakly protrusible.
- ▶ Jaws and prevomer with small conical teeth.
- ▶ Dorsal fin with 16 to 18 strong spines.
- ▶ Anal fin with 8 to 11 spines.
- ▶ Caudal fin rounded.
- ▶ Two lateral lines.

Anabas testudineus (Bloch)

Synonyms: *Anthias testudineus*, *Anabas scandens*, *Anabas testudineus riveri*, *Anabas testudineus lacustri*, *Anabas testudineus ricei*.

Common Name: Climbing perch (English)

Local Name: Koi (West Bengal)

Conservation Status (IUCN): Data Deficient (DD)

Commercial importance: This fish is a highly esteemed food fish for its fine flavour and nutritive value, restorative values and prolonged freshness out of water.

Identifying Characters: Body elongate and fairly deep. Small conical teeth on jaws and prevomer. Dorsal fin with 16 to 18 spines and 8 to 10 rays. Anal fin with 8 to 11 spines and 9 to 11 rays. Scales large, 21 to 29 scales in lateral series. Two lateral lines. Colour: Light to dark green above, pale yellow to orange below, often with 4 vertical bands of flanks; a distinct black spot on caudal peduncle and a black spot at the base of pectoral fin.

Other information: Inhabits fresh and brackish waters. Feeds on small insects, worms and other invertebrates. The fish species was recorded from Panchet and Ashis Nagar sites of river Damodar.

Family: Belontiidae

- ▶ Body rather deep and strongly compressed.
- ▶ Mouth small, upper jaw protrusible; jaws with teeth, no teeth on prevomer and palatines.
- ▶ Gill openings rather narrow; pseudobranchiae rudimentary or absent.
- ▶ Dorsal fin with 4 to 19 spines and 5 to 14 soft rays; anal fin very long-based, often further produced and elongated.
- ▶ Pelvic fins inserted below base of pectoral fins, often with an elongate ray on each side.
- ▶ Caudal fin usually rounded, but median rays often produced and lobe-like.

Colisa fasciatus (Schneider)

Synonyms: *Trichogaster fasciatus*.

Common Name: Striped Gourami, Giant Gourami (English),

Local Name: Khalisha, Cheli (West Bengal)

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: An attractive aquarium fish.

Identifying Characters: Body oval shaped and strongly compressed. Mouth small, jaws highly protrusible, upper lip thick. Pre-orbital serrate in young stage. Dorsal fin long based with 15 to 17 spines and 9 to 14 soft rays. Anal fin also long based with 15 to 18 spines and 14 to 19 soft rays. Anal fin scaly at base only. Pelvic fins thread like. Caudal fin truncate. Scales large, 29 to 31 in longitudinal series. Lateral line absent. Colour: Greenish with bluish bars on flanks descending obliquely from dorsal to ventral sides. Anal fin with a red margin.

Other Information: Inhabits large rivers and estuaries and also, ditches and ponds. The fish species collected from Panchet, Ashis Nagar, Burnpur and Jamalpur sites of the river.

***Colisa lalia* (Hamilton-Buchanan)**



Synonyms: *Trichopodus lalius*, *Colisa unicolor*, *Trichogaster lalius*.

Common Name: Dwarf Gourami (English)

Local Name: Khalisha (West Bengal)

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: Important potential aquarium fish

Identifying Characters: Mouth strongly protrusible. Pre-orbital denticulate. Dorsal fin with 15 to 17 spines and 7 to 10 rays. Anal fin with 17 to 18 spines and 13 to 17 rays. Soft dorsal and anal fins rounded. Caudal fin rounded to truncate. Anal fin densely scaled. Lateral line absent. Colour: Body scarlet crossed by oblique bands of pale blue. Fins with scarlet spots and anal fin with a red margin.

Other information: Available in stagnant puddles, stream and rivers. The fish species recorded from Panchet and Ashis Nagar sites of river Damodar.

Family: Channidae

- ▶ Body elongate and cylindrical with long, entirely soft-rayed dorsal and anal fins.
- ▶ Mouth large with toothed jaws and palate.
- ▶ Gill-openings wide; gill-membranes confluent with each other but free from isthmus; no pseudobranchiae.

- ▶ Branchiostegal rays five.
- ▶ Pelvic fins usually present (absent in some stocks of *Channa orientalis*), with six rays.
- ▶ Caudal fin rounded.
- ▶ Scales small, cycloid or ctenoid.
- ▶ Colour pattern usually in shades of grey, brown and black, often with distinctive markings.

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



Synonyms: *Ophiocephalus marulius*, *Ophiocephalus leucopunctatus*, *Ophiocephalus pseudomarulius*, *Channa marulius ara*.

Common Name: Giant snakehead (English)

Local Name: Sal, Gajal (West Bengal)

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: A potential sport fish as well as food fish

Identifying Characters: Mouth large, deeply cleft, maxilla extends behind orbit. Dorsal fin with 45 to 55 soft rays. Anal fin with 28 to 36 soft rays. 60 to 70 scales in lateral series. Colour: Grayish-green above and becoming lighter below, 5 or 6 dark oval blotches on flank. Dorsal and anal fins with white spots, a large black ocellus at upper part of the base of caudal fin. Juveniles with an orange band extending from eye to caudal fin.

Other information: Inhabits large lakes and rivers; prefers deep, clear stretches of water with sandy or rocky bottom. Carnivorous species and feeds on frogs, small fish, snails, insects, earthworms etc. The fish species collected from Ashis Nagar sites of the river.

***Channa punctatus* (Bloch)**



Synonyms: *Ophiocephalus punctatus*.

Common Name: Spotted snakehead (English)

Local Name: Taki, Lata (West Bengal)

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: Minor food fish

Identifying Characters: Body elongate and fairly rounded in cross-section. Eyes moderate, its diameter 7 to 8.5 times in head length. Mouth large; lower jaw with 3 to 6 canines behind a single row of villiform teeth which deepens to 5 or 6 rows at symphysis; villiform teeth on vomer and palatines. Pectoral fins extend to anal fin; pelvic fin about 75% of pectoral fin length. Caudal fin rounded. Scales on summit of head large, rosette of head-scales lies between orbit and hence the frontal head-scale with cephalic sensory-pit in centre forms central plate of rosette; 5 scale rows between preopercular angle and posterior border of orbit; predorsal scales 12; scales 37 to 40 in lateral series.

Other information: Found in large freshwater ponds and tanks, derelict and semi derelict waters. Feeds on insects, worms and tadpoles. The species collected from Ashis Nagar and Jamalpur sites of the river.

***Channa striatus* (Bloch)**



Synonyms: *Ophiocephalus striatus*

Common Name: Banded snakehead (English)

Local Name: Shol (West Bengal)

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: Important food fish of high market value.

Identifying Characters: Body elongated, scales on head large. Mouth large, lower jaw longer with 4 to 7 canines. Maxilla reaching behind hind border of eye. Dorsal fin with 37-47 rays. Anal fin with 23-29 rays. 50 to 57 scales in lateral line. Adults grey-green to black-green above, dirty white below. Bands of grey or black from middle of sides to abdomen. Dorsal and anal fins darker in colour than body with dark patches; young with a large black ocellus at the end of base of dorsal.

Other information: Available in freshwater ponds, streams and tanks and prefers stagnant muddy waters. Feeds on small herbivorous fishes. The fish species collected from Panchet, Namomezia, Ashis Nagar and Jamalpur sites of the river.

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



Synonyms: *Ophiocephalus gachua*, *Ophiocephalus apus*, *Ophiocephalus harcourt-butleri*,

Channa burmanica, *Ophiocephalus gachua kelaarti*.

Common Name: Asiatic snakehead (English)

Local Name: Cheng (West Bengal)

Conservation Status (IUCN): Not Evaluated (NE)

Commercial importance: Food fish with less importance.

Identifying Characters: Body elongated and large scales on head. Mouth moderately cleft, maxilla reaches to below hind border of eye. Anal fin with 20 to 24 soft rays. Pectoral fin extends to anal fin. 40 to 50 scales in longitudinal series. Usually greenish becoming lighter below. Pectoral fins with a series of distinct alternating blue and orange vertical bands. Dorsal, anal and caudal fins with scarlet or orange margin, often with a large ocellus on last five dorsal fin rays.

Other information: Inhabits mountain streams and lowland waters. Highly carnivorous species. The species recorded from upper-middle stretches of river in Ashis Nagar and Jamalpur sites.

Family: Mastacembelidae

- ▶ Body eel-like and compressed, with a characteristic elongated shape.
- ▶ Operculum (posterior flap) and sub- and inter-operculum bones thin; often lack spines on preoperculum.
- ▶ Gill-openings below suboperculum.
- ▶ Dorsal fin long, preceded by a series of isolated spines (usually 14 to 35); anal fin usually with 2 or 3 spines and 30 to 90 soft rays; no pelvic fins.
- ▶ Caudal fin distinct, often connected to posterior ray of dorsal or anal fin; if connected (by membrane) caudal finrays extend posterior to, and remain distinct from, last posterior dorsal and anal finray.
- ▶ Scales small and cycloid.

Macrogathus pancalus (Hamilton-Buchanan)



Synonyms: *Mastacembelus pancalus*.

Common Name: Stripped spiny eel (English)

Local Name: Turi, Pangkal (West Bengal),

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: Consumed by the people in some parts of West Bengal and practiced in aquarium

Identifying Characters: Pre-orbital spine strong and pierces skin. Pre-opercle with 2 to 5 spines. Mouth small, teeth on jaws minute. Dorsal fin inserted above middle of pectoral fins. Dorsal fin with 24 to 26 spines. Caudal fin not united with dorsal and anal fins. Greenish-olive above and yellowish below, yellowish-white spots on flanks, posterior part of body often vertically striped.

Other information: Inhabits rivers of plains and estuaries. Feeds mainly on aquatic insects, crustaceans, small forage fish. The fish species collected from Panchet, Namomezia, Ashis Nagar, Randiha and Burnpur sites of the river.

***Mastacembelus armatus* (Lacepede)**



Synonyms: *Macrognathus armatus*, *Mastacembelus manipurensis*.

Common Name: Tire-track spiny eel (English)

Local Name: Bam, Bami (West Bengal)

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: A potential food fish.

Identifying Characters: Long fleshy snout with trilobed tip. No spines on pre-orbital or pre-operculum. Dorsal fin inserted far behind tip of pectoral fin. Dorsal fin with 16-23 spines and last dorsal fin spine small. Soft dorsal fin and anal fin separated by a deep notch from caudal. Caudal fin rounded. Lateral line well developed. Brownish or greenish above and yellowish below, body with two broad pale longitudinal bands extending its entire length. A series of 3-9 large black ocelli along the base of soft dorsal fin. 6 or 8 vertical brown bars on caudal fin.

Other information: Found in fresh and brackish waters streams and rivers with sand, pebble and boulders substrate. Feeds on benthic insects larvae, worms and submerged plant materials. The fish species recorded from Panchet, Namomezia, Ashis Nagar, Randiha and Jamalpur sites of the river.

Order: Tetraodontiformes

- ▶ Mouth small, teeth united to form sharp edged plates.
- ▶ Pelvic fins absent or reduced to one strong spine.
- ▶ Gill opening restricted to lateral slits.
- ▶ Most are highly poisonous.

Family: Tetraodontidae

- ▶ Head large.
- ▶ Jaws with fused teeth, fused two teeth on both jaws.
- ▶ Eyes widely separated, located high on head.
- ▶ Dorsal and anal fins inserted far posteriorly and no fin spines.
- ▶ Pelvic fin absent.
- ▶ Caudal fin truncate, rounded or emarginated.
- ▶ Lateral line when present, often indistinct.
- ▶ Body covered with spinules on back or sides of the body.

***Tetraodon cutcutia* Hamilton-Buchanan**



Synonyms: *Monotreta gularis*, *Tetrodon caria*

Common Name: Oscillated puffer fish (English)

Local Name: Tapa, Kariya-phoksa (West Bengal)

Conservation Status (IUCN): Least Concern (LC)

Commercial importance: No interest of fisheries.

Identifying Characters: Mouth terminal. Fins rounded. Skin leathery, without dermal spinules. Dorsal fin with 10-13 rays. Anal fin with 10-12 rays.

Other information: Inhabits fresh and brackish waters. This omnivore fish species was recorded from Jamalpur sites of the river.

Fish Diversity and composition

A total of 68 species were recorded during sampling undertaken twice a year during June, 2007 to-June, 2010 from six sampling sites of the river.

The present investigations indicate that the water body of river Damodar has a rich biodiversity of fresh water fishes. Fish diversity recorded a total of 68 species belonging to 22 families and 46 genus (Table 1)

Species of the family Cyprinidae was dominant in all the sites (47.61%) followed by Bagridae (6.34%) and Channidae (4.76 %) (Fig. 37) The abundance distribution showed 23 dominant species across the sites. Maximum species richness (75.36 %) was recorded from Ashishnagar site, followed by Panchet (65.2%) and Namomejia (49.27 %) indicating less disturb areas in respect of pollution level as well as suitable habitat characteristics. The dominant species was *Gudusia chapra* with significant relative abundance of (40%) followed by *Securila gora* (20%) and *Labeo bata* (3.5%). Exotic species *Oreochromis niloticus* and *Ctenopharyngodon idella* recorded their presence with relative abundance of 0.06 and 0.003% respectively (Table 1).

A sharp dominance of minor and medium carp was evident in the entire stretch (Table 1). An important observation was that 31.74 % fish species that comes under the threatened category in other areas was found to be stable in the river. The trophic structure of fish indicated dominance of carnivore fish species across the river (47%) followed by omnivore and herbivores. (Fig. 38)

Significantly out of 68 species, 34% of the species are potential ornamental fishes, 62% are food fishes and 4% are sport fishes. (Fig. 39)

Three endangered fish species recorded viz. *Ailia coila*, *Bagarius bagarius* and *Wallago attu* had low relative abundance.

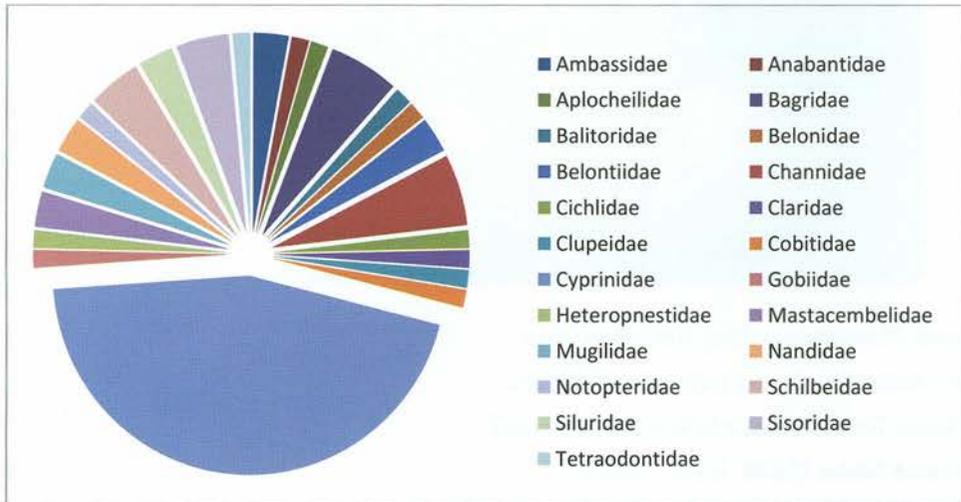


Fig. 37

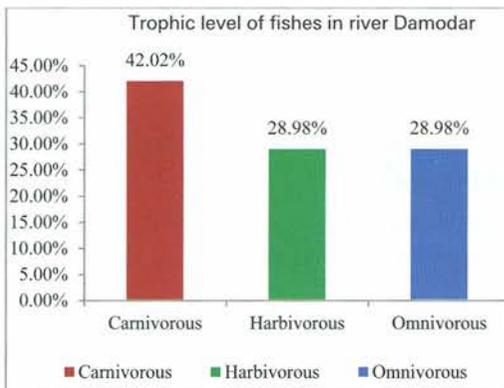


Fig. 38

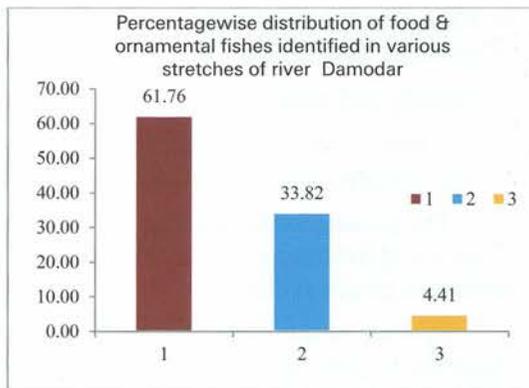


Fig. 39

Table 1: Fish species, families and their relative abundance percentage in the studied sites of river Damodar

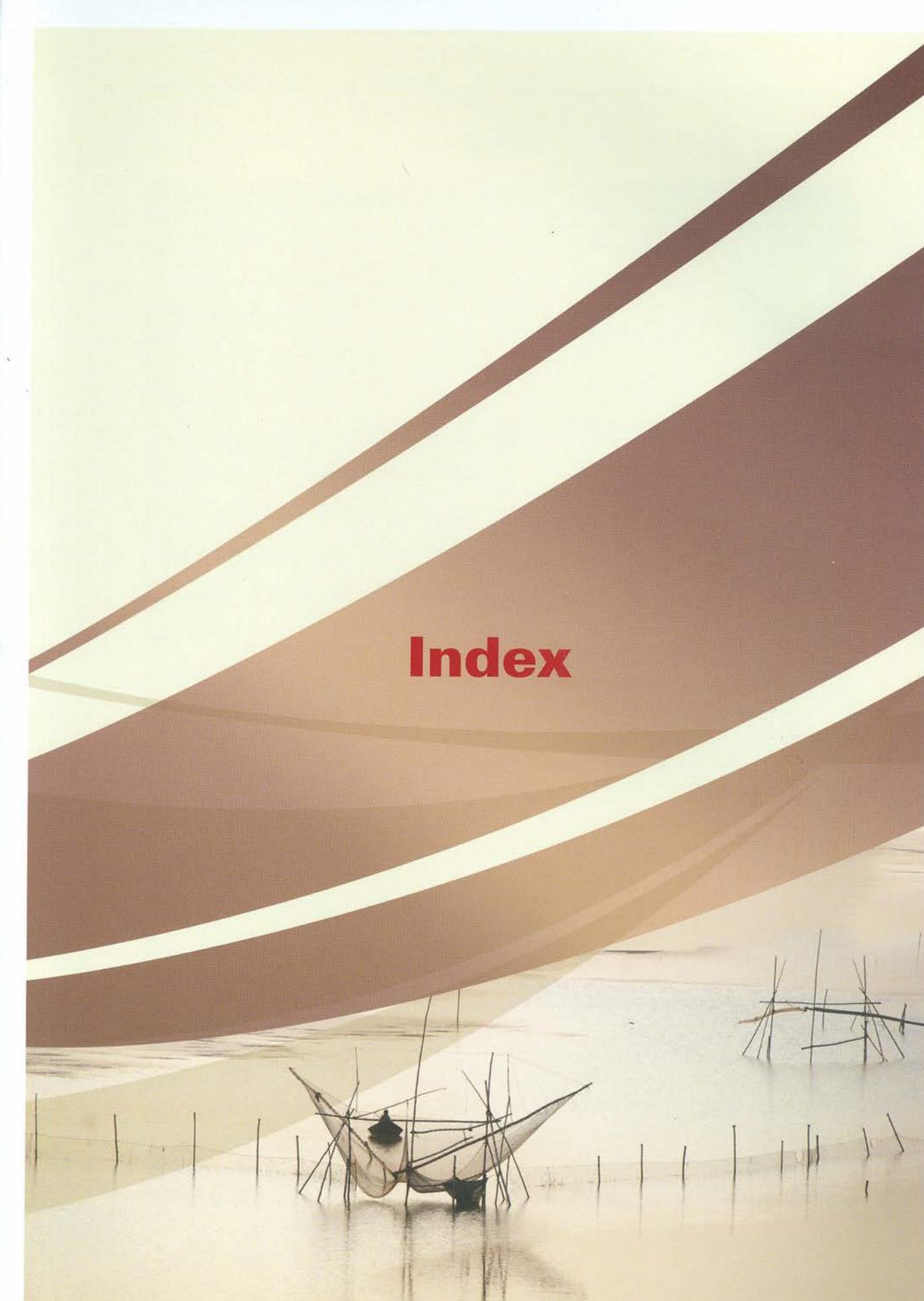
	Rangarh RA	Panchet RA	Namomejia RA	Ashishnagar RA	Randhia RA	Burnpur RA	Sadar (Burdwan) RA	Jamalpur RA	Total RA
<i>Notopteridae</i>									
<i>Notopterus notopterus</i>	0.00	0.46	0.00	0.70	0.17	0.00	0.00	1.02	0.452
<i>Clupeidae</i>									
<i>Gudusia chapra</i>	4.36	49.84	1.83	17.12	0.00	3.87	1.56	3.74	40.210
<i>Cyprinidae</i>									
<i>Amblypharyngodon mola</i>	0.00	1.30	0.00	3.35	6.91	1.06	0.00	1.36	1.584
<i>Aspidoparia morar</i>	0.00	0.00	1.72	0.20	6.24	0.00	9.38	7.82	0.360
<i>Barilius barila</i>	2.72	0.00	1.54	0.00	2.02	4.23	0.00	0.00	0.198
<i>Barilius barna</i>	1.63	0.00	9.47	0.00	0.00	0.35	0.00	0.00	0.551
<i>Barilius bendelisis</i>	0.82	0.00	5.92	0.00	0.00	2.46	0.00	0.00	0.363
<i>Barilius vagra</i>	0.00	0.00	0.00	0.00	0.00	1.06	0.00	0.00	0.010
<i>Catla catla</i>	0.00	0.27	0.00	0.25	0.00	0.00	0.00	0.00	0.241
<i>Chagunius chagunio</i>	15.53	0.00	0.36	0.67	0.00	0.35	9.38	0.00	0.340
<i>Cirrhinus mrigala</i>	0.00	0.14	0.06	1.39	1.01	0.70	0.00	14.29	0.455
<i>Cirrhinus reba</i>	13.08	0.00	5.15	3.13	0.84	12.32	2.34	0.34	1.006
<i>Crossocheilus latius latius</i>	2.18	0.00	0.00	0.15	0.00	0.00	0.00	0.00	0.046
<i>Ctenopharyngodon idella</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.003
<i>Garra lamta</i>	2.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.033
<i>Labeo angra</i>	0.00	0.00	0.00	0.89	0.00	0.00	0.00	0.00	0.119
<i>Labeo bata</i>	1.91	3.48	6.63	1.66	1.18	3.17	8.59	19.39	3.523
<i>Labeo boga</i>	0.00	0.00	0.00	0.00	21.59	0.00	0.00	0.00	0.422
<i>Labeo calbasu</i>	0.00	0.12	0.12	0.15	0.51	0.00	0.00	0.34	0.129
<i>Labeo dyocheilus</i>	0.00	0.00	0.00	0.00	0.00	3.17	0.00	0.00	0.030

<i>Labeo rohita</i>	0.00	1.73	0.06	0.32	0.34	0.00	0.00	5.10	1.409
<i>Osteobrama cotio cotio</i>	0.00	0.02	0.06	0.77	0.00	0.00	0.00	0.34	0.122
<i>Puntius chonchonius</i>	0.00	0.00	1.48	8.35	0.00	2.46	0.00	19.73	1.405
<i>Puntius sarana</i>	0.00	0.02	0.30	0.00	0.00	0.00	0.00	0.00	0.033
<i>Puntius sophore</i>	0.00	2.35	3.02	10.51	4.89	0.00	0.00	0.00	3.434
<i>Puntius terio</i>	0.00	1.74	5.33	5.59	0.00	0.00	0.00	0.00	2.359
<i>Puntius ticto</i>	1.91	0.02	9.53	5.74	0.00	0.00	0.00	1.70	1.346
<i>Rasbora elanga</i>	0.00	0.00	13.61	0.67	0.00	0.00	1.56	0.00	0.854
<i>Rasbora rasbora</i>	0.00	0.23	0.00	0.20	0.00	1.06	0.00	0.00	0.208
<i>Salmophasia bacaila</i>	40.05	0.18	1.72	1.66	6.07	45.77	45.31	1.70	1.696
<i>Salmophasia phulo</i>	0.00	1.33	0.00	2.68	16.19	0.00	0.00	0.00	1.676
<i>Securicula gora</i>	0.00	25.29	8.88	0.00	16.19	0.00	0.00	0.00	19.947
Balitoridae									
<i>Nemacheilus botia</i>	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.00	0.023
Cobitidae									
<i>Lepidocephalus guntea</i>	0.00	0.00	0.00	0.00	0.00	0.70	0.00	0.00	0.007
Bagridae									
<i>Mystus cavasius</i>	11.99	0.92	5.98	2.83	0.00	0.00	5.47	3.74	1.613
<i>Mystus vittatus</i>	0.00	1.68	0.00	1.12	0.00	0.00	0.00	0.00	1.422
<i>Sperata aor</i>	0.00	0.01	0.12	0.30	0.00	0.00	1.56	1.02	0.073
<i>Sperata seenghala</i>	0.00	1.80	0.83	1.14	0.00	0.00	0.00	0.68	1.564
Siluridae									
<i>Ompok pabda</i>	0.00	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.112
<i>Wallago attu</i>	0.00	0.36	0.59	0.50	0.34	0.00	0.78	1.02	0.393
Schilbeidae									
<i>Ailia coila</i>	0.00	0.51	0.00	1.79	0.00	0.00	0.00	0.00	0.627

Gobiidae									
<i>Glossogobius giuris</i>	0.00	0.89	1.30	3.90	0.00	0.70	2.34	2.38	1.306
Anabantidae									
<i>Anabas testudineus</i>	0.00	0.32	0.00	0.02	0.00	0.00	0.00	0.00	0.247
Belontiidae									
<i>Colisa fasciata</i>	0.00	0.01	0.00	1.24	0.00	0.00	4.69	0.34	0.195
<i>Colisa lalia</i>	0.00	0.02	0.00	1.19	0.00	0.00	0.00	0.00	0.172
Channidae									
<i>Channa marulius</i>	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.34	0.007
<i>Channa punctatus</i>	0.54	0.17	0.00	2.29	0.00	1.76	0.00	0.68	0.465
<i>Channa striatus</i>	0.00	0.24	0.12	0.35	0.00	0.00	0.00	0.34	0.234
<i>Channa orientalis</i>	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.34	0.036
Mastacembelidae									
<i>Macrogathus pancalus</i>	0.00	0.38	0.41	2.39	0.00	0.00	1.56	0.00	0.633
<i>Mastacembelus armatus</i>	0.00	0.94	3.55	4.57	1.85	0.00	0.00	2.38	1.577
Tetraodontidae									
<i>Tetraodon cutcutia</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.02	0.010

Fishing activities in River Damodar





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