

A GENERAL ACCOUNT OF FISH *Catla catla* (HAMILTON 1822)

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Abstract:

Varieties of fishes are cultivated in India and Indian subcontinent. Inland fish resources of India are the richest source of fishes in the world. The river Ganga and its tributaries are the natural and vast habitat of Indian major carps like *Catla catla*, *Labeo rohita* and *Cirrhinus mrigala*. These are the most important major carp culture in Asia and commercially culture in India and Indian subcontinent. *Catla catla* (Hamilton 1822) is the fresh water Indian carp native to India, Bangladesh, Myanmar, Nepal, and Pakistan. It is also introduced in many other countries as exotic species. *Catla catla* is a very rich source of proteins and the important lipids especially ω -3 fatty acids. Because of its high nutritive value, it is a highly priced food fish having a great demand in the market. It is an economically important fish, having a great commercial value. *Catla catla* is the very rich source of protein.

Keywords: Indian Major Carp, *Catla catla*

Introduction:

Carps are the fishes belonging to the family Cyprinidae of class Osteichthyes. These are the toothless fishes and cycloid scales form the external covering of the body. The carps having more than 11 undivided fin rays are called as major carps while the carps having less than 11 undivided fin rays are called as minor carps (Murthy, 2002). An important cultivable species of carps are the Indian major carps *Catla catla*, *Labeo rohita*, *Cirrhinus mrigala*, Exotic carp, Grass carps and common carps. These are the most common food fishes having great economic importance (Sarder *et.al.*, 2011). They are generally produced for local consumption rather than for export. Carp culture is the traditional practice which recently received the broad scientific base and hence responsible to increase the pond productivity (Alikunhi, 1957).

Varieties of fishes are cultivated in India and Indian subcontinent. Inland fish resources of India are the richest source of fishes in the world. There are nearly 21000 fish species cultivated in Indian subcontinent out of which 40% are fresh water grows in tropical regions like lakes, rivers, canals, brackish water estuaries (Azim *et.al.*, 2022). The river Ganga and its tributaries are the natural and vast habitat of Indian major carps like *Catla catla*, *Labeo rohita* and *Cirrhinus mrigala*. The Indian major carp have great market demand due to their taste and

flesh and contribute about 67% of total freshwater fish production (ICLARM, 2001). These Indian major carps are cultivated together in composite fish farming as they have a different feeding habitat and can utilize the resources efficiently to give a better yield (Hansen *et.al.*, 2006).

***Catla catla* (Hamilton 1822):**

Catla catla (Hamilton) is the fresh water Indian carp native to India, Bangladesh, Myanmar, Nepal, and Pakistan. It is also introduced in many other countries as exotic species. *Catla catla* is a very rich source of proteins. It is an economically important fish, having a great commercial value (Chalchisa, 2023). It occurs mainly in fresh water ecosystem in abundance. *Catla catla* is one of the fastest growing Indian major carp which can grow upto 182 cm in length and about 50 kilograms in weight, and it can attain a maximum size within short period of time, hence consider as the fastest growing Indian major carp (Karima *et al.*, 2023).

Catla catla has a characteristically large, upturned mouth with a prominent protruding jaw. Its upturned mouth and large gill rakers are well adapted to feed on numerous free floating organisms present in water. It is a surface and mid-water feeder, mainly omnivorous which can feed on zooplankton as well as phytoplankton. Its juveniles of *Catla catla* feed on aquatic and terrestrial insects, water fleas, detritus matter and phytoplankton until they reach a length of about 15 to 20 millimeters. *Catla catla* is the very rich source of protein and the important lipids specially ω -3 fatty acids. Because of its high nutritive value, it is a highly priced food fish having a great demand in the market.

Geographical distribution:

Catla catla is found in both the fresh water as well as brackish waters and can be seen in the tidal areas. The original natural distribution of *Catla catla* was fresh water rivers through the India, Pakistan and Burma, because of its successful transportation from the beginning of 20th century the fish has now spread over the whole of peninsular India. Nowadays the fish is distributed all over Pakistan, India, Nepal, Bangladesh, Burma. *Catla catla* has been introduced into almost all riverine systems, reservoirs and tanks all over India. It is mostly observed in the broad deep pulls of the fresh water rivers during the winter and summer months. For breeding purpose, the fish shows migration, during the period of the monsoon, June- September. *Catla catla* can polyculture along with the rohu (*Labeo rohita*) and mrigal (*Cirrhinus mrigala*). The composite culture of the *Catla catla* is also carried out successfully with the two Indian major carp rohu (*Labeo rohita*) and mrigal (*Cirrhinus mrigala*) and the three species of exotic carp that is common carp (*Cyprinus carpio*), grass carp (*Ctenopharyngodon idella*) and silver carp (*Hypophthalmichthys molitrix*).

Taxonomic position:

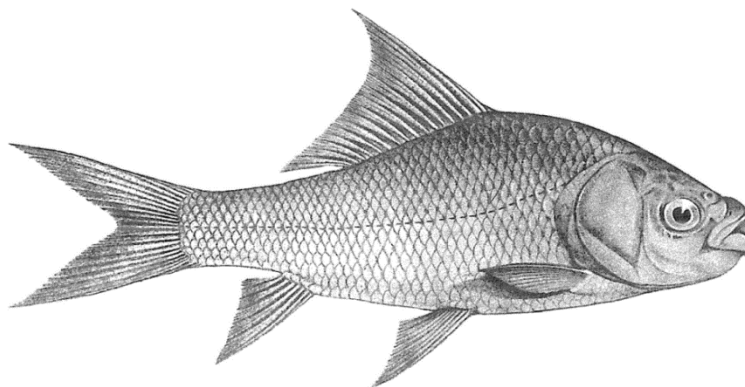
Phylum	-	Vertebrata
Sub phylum	-	Craniata
Super Class	-	Ganthostamata
Class	-	Teleostomi
Sub Class	-	Actinopterygii
Sub Order	-	Cyprinoidei
Family	-	Cyprinidae
Genus	-	Catla
Species	-	<i>Catla-catla</i> (Hamilton 1882)

Related taxa:

Today *Catla catla* is found in most of the places in India and hence it has different local names in the different regions some of which are mentioned below.

State	Name
Maharashtra	Catla
West Bengal	Catla
Assam	Baudhekra
Gujarat	Tambra
Hindi	Chepti
Orissa	Barkur
Punjab	Theil
Tamil Nadu	Tayoppa
Andhra Pradesh	Bacha
Kerala	Kazkatla

Morphology:



Morphology of fish *Catla catla*

The body of fish *Catla catla* is dull silver white but it is also darkish in color in weedy water. Body is deep and the dorsal side is more convex than the ventral side. Head is large with large rounded eyes, mouth is wide with prominent lips, dorsal fin is quite large, caudal fin is bilobed. The fry of *Catla catla* are distinguished by the relatively large head with reddish gills.

- Body deep its depth 2.5 to 3 times in standard length
- Head enormously large.
- Mouth wide and upturned, with prominent, protruding lower jaw.
- Snout is surrounded by thin integument.
- Eyes in front of head, absence of barbells.
- Dorsal fin commences in advance of ventral pectoral fin long extend to pelvic fin, anal and caudal fin short.
- Scales conspicuously large.
- Lateral line central and continuous till the base of caudal fin and having 40-43 scales.
- Upper lip absent, lower moderately thick having Continuous and free posterior margin. In large specimens, some pores on the Snout are visible.
- No barbells, gill rakers are long, fine and closely set.

Fin formula:

D 3-4/14-10,p21;v9 A3/5;c19;11;40-43;L.tr.71/2/9

Color:

Grayish on the back side and flanks silvery white from below. Fishes inhabiting turbid or weedy ponds possesses darker colouration.

Maturity:

Catla catla attains the maturity in the second year of life. The body length of mature *catla* varies in different species; the estimated length of matured *Catla catla* is approximately 441.559 mm to 558.8 mm Natarajan and Jhingran (1961).

Reproduction:

Catla catla can grow upto 15- 18 inches in length in the first year but it cannot attain sexual maturity at this age. In the second year *Catla catla* attains maturity in the second year that is they are ready to breed in the third season after hatching. In monsoon season *Catla catla* shows spawning migration towards the upper river stretches, where male and female breed in shallow peripheral regions. The spawning season lasts between May and August and in north India and Pakistan from June to September.

In India *Catla catla* breed in rivers during the south-west monsoon that is from June to August, after sudden heavy rain. Fecundity of *Catla catla* varies from 100,000-200,000/kg BW,

depending on fish length and weight. The seeds are brought by water flow to the downstream areas where they are caught by seed collectors. Early fish are available in large numbers during June-July in Assam, Bengal and Bihar, and during July-August in Orissa, Punjab and Andhra Pradesh are collected in millions and stocked in nursery ponds.

Fecundity:

"Fecundity can be defined as the number of ova laid by a fish during the spawning season." It is the measure of the reproductive capacity of the female fish. Ntarajan and Jhingran (1961) found the fecundity of *Catla catla* to vary from 2309831 to 492022509 depending upon the length and weight of the fish and the weight of the ovary.

Feeding habit:

Catla catla is surface or column feeder. It has large upturned mouth and large gill rakers hence *Catla catla* is well adapted to feed on numerous organisms floating in water. The young ones of *Catla catla* start feeding from the third day after hatching. At fifth day the mouth parts, alimentary canal and its associated structures are fully formed and the fish starts to feed on natural diet. The young ones of *Catla catla* feed almost exclusively on water fleas and other animalcules in the water. The adult *Catla catla* feed on the diversity of the feed present in water that is on aquatic and terrestrial insects, water fleas, detritus matter, phytoplankton and zooplanktons which occurs naturally in the water. Adult *Catla catla* can also accept the artificial diet in the form of powder or pellets.

Food and feeding of fish *Catla catla*:

Feeding management plays an important role in success of fish culture. Feeding of fish with a balanced diet is very important as low feeding leads to poor growth while the excess feeding may lead to the fish death and makes financial losses, it also deteriorates the water quality Nandeesh et.al., (2013). Fish *Catla catla* have become adapted to a wide variety of food. It can feed on the phytoplanktons as well as zooplanktons which are present naturally in the water bodies and hence shows the omnivores feeding habitat. It can also accept the artificial food.

Nutrient requirement of fish *Catla catla*:

Proper growth and survival of the fish is influenced by the availability of the right type of food in the right proportion. Generally, fish food constitutes the nutrients and energy sources essential for the growth, reproduction, and health of fish. For profitable growth of fishes, the feed must be adequate in their nutritional composition. For any organism including fish also carbohydrates, proteins and fats are of primary importance and deficiencies of these substances can reduce growth rates or lead to diseases, but in excess amounts it also leads to a reduction in

growth rate Rangasamy *et.al.*, (2021). Carbohydrates, proteins and fats are of essential significance for the normal growth and development of the fish. Micronutrients like vitamins and minerals also play an important role in fish growth, so it is important to study the role of these basic nutrients. Protein, lipid and carbohydrate functions as the metabolic reserve in the fish body, as they are necessary for reproduction, growth and development of the cellular membrane structure.

Economic importance of *Catla catla*:

Catla catla (Hamilton) is an important Indian major carp that got importance both in culture and capture fisheries. It is one of the most valuable food fish, mostly cultivated in freshwater ponds and lakes in the absence of carnivorous fish. It is the fastest-growing fish species among the three Indian major carps, (Chalchisa, 2023). *Catla catla* is largely employed for stocking in tanks. The fish is fleshy and noted for its delicacy and valued very high in the market. It is best for consumption. Catla is also game fish. It is used as a sport fish. It is used as the surface feeder in Indian major carp polyculture systems. Being a surface feeder that is highly preferred by the consumer (Kunguma *et.al.*, 2019), Catla forms an integral component in carp polyculture systems (Rahman *et.al.*, 2017).

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