

**Diagnostic Characters
of Economically
Important Finfishes**

Freshwater Fishes



Indian Major Carps (IMCs)



Catla catla or Labeo catla (Bhakur)



Labeo rohita (Rohu)



Cirrhinus mrigala (Nainee)

Diagnostic characters of *Labeo rohita*

- Body elongated, highest body length is found at the commencement of dorsal fin.
- Dorsal fin rays 14-16
- Mouth position terminal
- Snout fairly depressed, projecting beyond jaws without any lateral lobe.
- Inter-orbital space is convex
- Lips are thick and fringed. Post labial groove is continuous
- A pair of short maxillary barbels
- Teeth are absent in jaws but pharyngeal teeth are present
- Lateral line scales: 40
- Fin formula: D (iii)+13; P (i)+16-17; V (i)+8, A (ii)+5

Taxonomic Classification of *Labeo rohita*

Phylum: Chordata

Subphylum: Vertebrata

Superclass: Gnathostomata

Grade: Pisces

Subgrade: Teleostomi

Class: Osteichthyes

Subclass: Actinopterygii

Infraclass: Teleostei

Order: Cypriniformes

Family: Cyprinidae

Genus: *Labeo*

Species: *rohita*



Diagnostic characters of *Cirrhinus mrigala*

- Body depth almost equal to head length.
- Snout is blunt.
- Mouth position inferior.
- Mouth broad, upper lip complete but lower lip indistinct.
- A single short pair of rostral barbel present
- Teeth are absent in jaws but pharyngeal teethes are present and arranged in three row
- Gill rackers on first gill arch are 40-49 in number.
- Dorsal fin is as high as body depth.
- Pectoral fin is shorter than head length.
- Caudal fin deeply forked.
- Lateral line scales 42-45
- Fin formula: D (iii)+12-13; P (i)+17; V (i)+8, A (iii)+5

Taxonomic Classification of *Cirrhinus mrigala*

Phylum: Chordata

Subphylum: Vertebrata

Superclass: Gnathostomata

Grade: Pisces

Subgrade: Teleostomi

Class: Osteichthyes

Subclass: Actinopterygii

Infraclass: Teleostei

Order: Cypriniformes

Family: Cyprinidae

Genus: *Cirrhinus*

Species: *mrigala*



Diagnostic characters of *Catla catla*

- Body is deep compressed, Dorsal profile more convex than that of ventral.
- Eyes are large and visible from the below of headdepth almost equal to head length.
- Snout is blunt.
- Mouth wide, position superior, prominent protruding lower jaw with a movable articulation at the symphysis.
- Lips are thick and unfringed.
- Barbels absent
- Dorsal fin is long and inserted above the tip of pectoral fin with 17-18 rays
- Teeth are absent in jaws but pharyngeal teethes are present Lateral line scales 40-43
- Fin formula: D (iii) +15; P (i)+18, V (i)+9; A (iii)+5

Taxonomic Classification of *Catla catla*

Phylum: Chordata

Subphylum: Vertebrata

Superclass: Gnathostomata

Grade: Pisces

Subgrade: Teleostomi

Class: Osteichthyes

Subclass: Actinopterygii

Infraclass: Teleostei

Order: Cypriniformes

Family: Cyprinidae

Genus: *Catla*

Species: *catla*



Diagnostic characters of *Clarius batrachus* (Magur)

- Broad and flat head and an elongate body which taper towards the tail (body compressed posteriorly)
- Four pairs of barbels (whiskers and fleshy)
- Papillated lips
- Teeth villiform, occurring in patches on the jaws and palate
- Maxillary barbels reach to the middle or base of the pectoral fin
- Mandibular barbels are shorter
- Eyes are small
- Dorsal fin is continuous and extended along the back, two-third of the length of the body but there is no dorsal spine
- Dorsal, caudal and anal fins together form a near continuous margin
- Pectoral spine present, outer edge of pectoral spine is rough while inner edge have serrations.
- Occipital process is more or less triangular, its length about 2 time in its width.
- Fin formula: D (0)+60-76; P (I)+8-11; V (I)+5, A (0)+47-58

Taxonomic Classification of *Clarius batrachus*

Phylum: Chordata

Subphylum: Vertebrata

Superclass: Gnathostomata

Grade: Pisces

Subgrade: Teleostomi

Class: Osteichthyes

Subclass: Actinopterygii

Infraclass: Teleostei

Order: Siluriformes

Family: Clariidae

Genus: *Clarius*

Species: *batrachus*



Diagnostic characters of *Pangasiondon hypophthalmus* (*Pangas*)

- Body elongated, head small, smooth skinned (scaleless)
- Mouth terminal, upper jaw slightly longer than lower
- Fins dark grey or black with reddish tinge & 6 branched dorsal-fin rays
- Gill rakers normally developed
- Young with a black stripe along lateral line and a second long black stripe below lateral line,
- Large adults uniformly grey.
- Dark stripe on the middle of anal fin; dark stripe in each caudal lobe; small gill rakers regularly interspersed with larger ones
- Fin formula: D (I)+6, P (I)+12, V 8-9, A 29-30

Taxonomic Classification of *Pangasiondon hypophthalmus*

Phylum: Chordata

Subphylum: Vertebrata

Superclass: Gnathostomata

Grade: Pisces

Subgrade: Teleostomi

Class: Osteichthyes

Subclass: Actinopterygii

Infraclass: Teleostei

Order: Siluriformes

Family: Pangasiidae

Genus: *Pangasiondon*

Species: *hypophthalmus*



Diagnostic characters of *Hypophthalmichthys molitrix*

- Body stout and compressed with uniform silver colouration
- Mouth large, slightly superior and jaw toothless, pharyngeal teeth are present in one row 4/4.
- Dorsal fin originated behind the pelvic fin.
- Dorsal fin rays 8
- Gill rakers are fused into a sponge like porous plate. normally developed
- Small scales, No barbel,
- Lateral line complete, curved ventrally with 83-124 scales
- Fin formula: D (I)+6-7, P (I)+12-14, V (I) +7-8, A 29-30

Taxonomic Classification of *Hypophthalmichthys molitrix*

Phylum: Chordata

Subphylum: Vertebrata

Superclass: Gnathostomata

Grade: Pisces

Subgrade: Teleostomi

Class: Osteichthyes

Subclass: Actinopterygii

Infraclass: Teleostei

Order: Cyprinidiformes

Family: Cyprinidae

Genus: *Hypophthalmichthys*

Species: *molitrix*



Diagnostic characters of *Anabas testudineus*

- Body laterally compressed with scales on head
- Mouth anterior and lower jaw is slightly longer
- Villiform teeth are present on the jaws
- Long dorsal and anal fin
- Pectoral and caudal fin are rounded
- Dorsal, pelvic and anal fin rays are modified to spines
- Scales are ctenoid.
- Lateral line interrupted, first lateral line (towards head) have 16-17 scales and second lateral line (towards tail) have 11-12
- Fin formula: D (XVI-XVIII)+8-10, P (I)+13-14, V (I) +5, A (XVIII-IX) + 10-11

Taxonomic Classification of *Anabas testudineus*

Phylum: Chordata

Subphylum: Vertebrata

Superclass: Gnathostomata

Grade: Pisces

Subgrade: Teleostomi

Class: Osteichthyes

Subclass: Actinopterygii

Infraclass: Teleostei

Order: Perciformes

Family: Anabantidae

Genus: *Anabas*

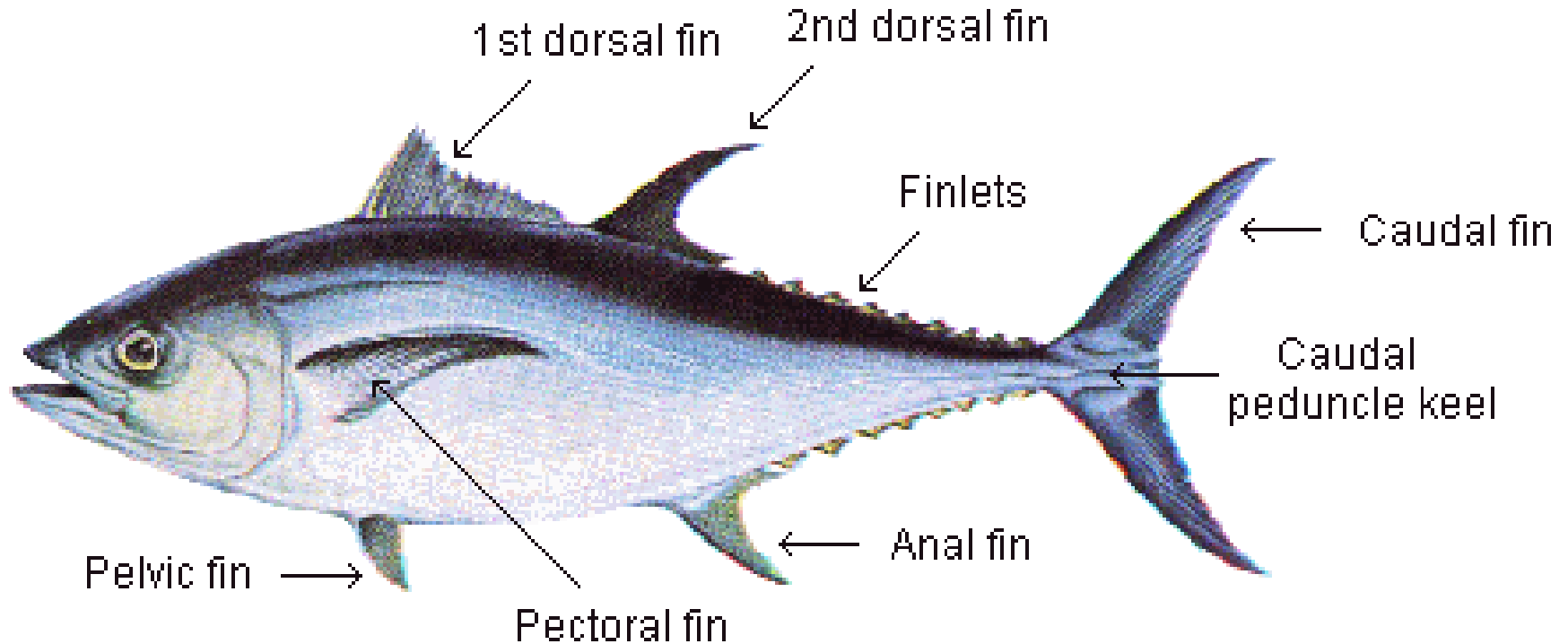
Species: *testudineus*



Marine Fishes



Diagnostic characters of *Thunnus albacares*



Elongate, fusiform body, slightly compressed laterally; total gill rakers on first gill arch 26-34; dorsal fins 2 and separated only by a narrow interspace, the second followed by 8-10 finlets; anal fin followed by 7 to 10 finlets; large specimens may have very long second dorsal and anal fins, becoming well over 20% of fork length. Pectoral fins moderately long, usually reaching beyond second dorsal-fin origin but not beyond end of its base, usually 22-31% of FL

Diagnostic characters of *Thunnus albacares*

- 2 flaps (interpelvic process) between pelvic fins.
- Body with very small scales
- Caudal peduncle very slender, bearing on each side a strong lateral keel between 2 smaller keels
- Colour of back metallic dark blue changing through yellow to silver on belly; belly frequently crossed by about 20 broken, nearly vertical lines; dorsal and anal fins, and dorsal and anal finlets bright yellow, the finlets with a narrow black border

Taxonomic Classification of *Thunnus albacares*

Phylum: Chordata

Subphylum: Vertebrata

Superclass: Gnathostomata

Grade: Pisces

Subgrade: Teleostomi

Class: Osteichthyes

Subclass: Actinopterygii

Infraclass: Teleostei

Order: Perciformes

Family: Scombridae

Genus: *Thunnus*

Species: *albacares*



Diagnostic characters of *Rastrelliger kanagurta*

- Body moderately deep, its depth at margin of gill cover 4.3 to 5.2 times in fork length
- Head longer than body depth.
- Maxilla partly concealed, covered by the lacrimal bone, but extending to about hind margin of eye.
- Well developed adipose eyelids.
- Gillrakers very long, visible when mouth is opened, 30 to 46 on lower limb of first arch; a moderate number of bristles on longest gillraker.
- Two widely separated dorsal fins; second dorsal and anal fins each followed by 5 or 6 finlets.
- Colour: Black blue/green, flanks silver with a golden tint; 2 rows of small dark spots on sides of dorsal fin bases, narrow dark longitudinal bands on upper part of body (golden in fresh specimens) and a black spot on body near lower margin of pectoral fin; dorsal fins yellowish with black tips, caudal and pectoral fins yellowish; other fins dusky.
- Fin formula: D. (VIII + (I) 11 + 5 finlets, P 20, V (I)+5, A (I) 11 + 5 finlets

Taxonomic Classification of *Restrelliger kanagurta*

Phylum: Chordata

Subphylum: Vertebrata

Superclass: Gnathostomata

Grade: Pisces

Subgrade: Teleostomi

Class: Osteichthyes

Subclass: Actinopterygii

Infraclass: Teleostei

Order: Perciformes

Family: Scombridae

Genus: *Rastrelliger*

Species: *kanagurta*



Diagnostic characters of *Harpadon nehereus*

- Colour: Translucent or brownish/ semitransparent appearance.
- Scales present in trunk and caudal region only.
- Dorsal fin rays 12 – 13
- Lateral line scales or pores: 44 – 47
- Pectoral fin long with 9 rays
- Gill arch specialized, apparently unknown in any other teleost
- Pelvic fins with nine rays
- No fin with spines
- Adipose dorsal fin present
- Translucent or brownish
- Nares: two pairs



Taxonomic Classification of *Harpadon nehereus*

Phylum: Chordata

Subphylum: Vertebrata

Superclass: Gnathostomata

Grade: Pisces

Subgrade: Teleostomi

Class: Osteichthyes

Subclass: Actinopterygii

Infraclass: Teleostei

Order: Aulopiformes

Family: Synodontidae

Genus: *Harpadon*

Species: *nehereus*

