

TRASH FISH SPECIES OF MALVAN

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Background

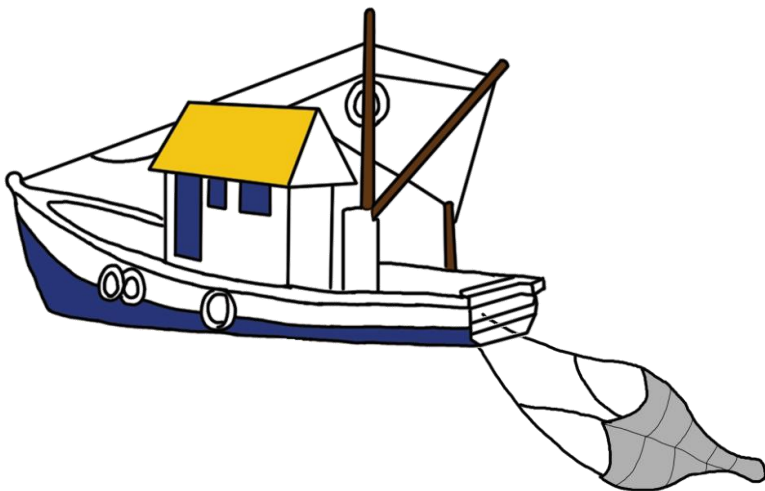
Trash fish, also known as low value bycatch, reduction fish or FMFO fish, refers to fish that are used for the production of fishmeal and fish oil, used as high-protein feed largely by the aquaculture and poultry industries^[1]. These are generally small-sized and/or damaged fish that captured as bycatch in mechanized and non-selective fishing gear. Unchecked harvesting of these species for reduction fisheries can put enormous pressure on marine habitats, food webs and can endanger the sustainability of commercial fish populations^[2].

This guide describes the common species sold as trash fish in Malvan, Sindhudurg, Maharashtra, based on [research](#)^[3] conducted in this region. Species descriptions were obtained from sources such as [FAO](#)^[4], [FishBase](#)^[5], [CCARI](#)^[6], [SeaLifeBase](#)^[7], and [Finfishes of the Gulf of Mannar](#)^[8].

Fisheries Craft and Gear

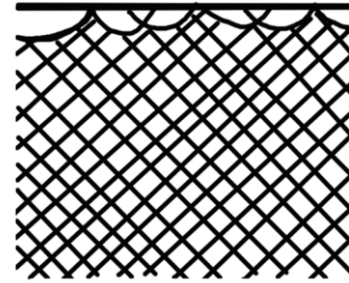
A diverse range of fishing craft and gear operate out of Malvan. The main fisheries contributing to the fishmeal industry are trawlers, gillnets and shore seines.

Trawlers in Malvan generally fish nearshore, within a depth of 100m, over 1 to 5 day fishing trips. Trawlers operate either a benthic net (towed over the sea floor) or a pelagic net (towed across the water column). Due to the non-selective nature of their nets, trawlers tend to have high volumes of bycatch, especially in pelagic nets. These bycatch species are generally landed and sold as trash fish for fishmeal production.

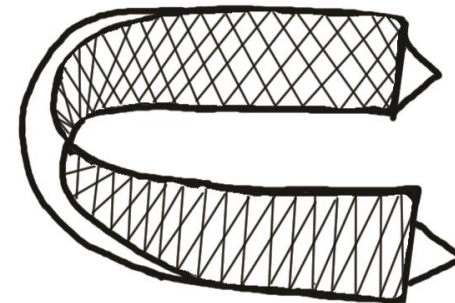


Fisheries Craft and Gear

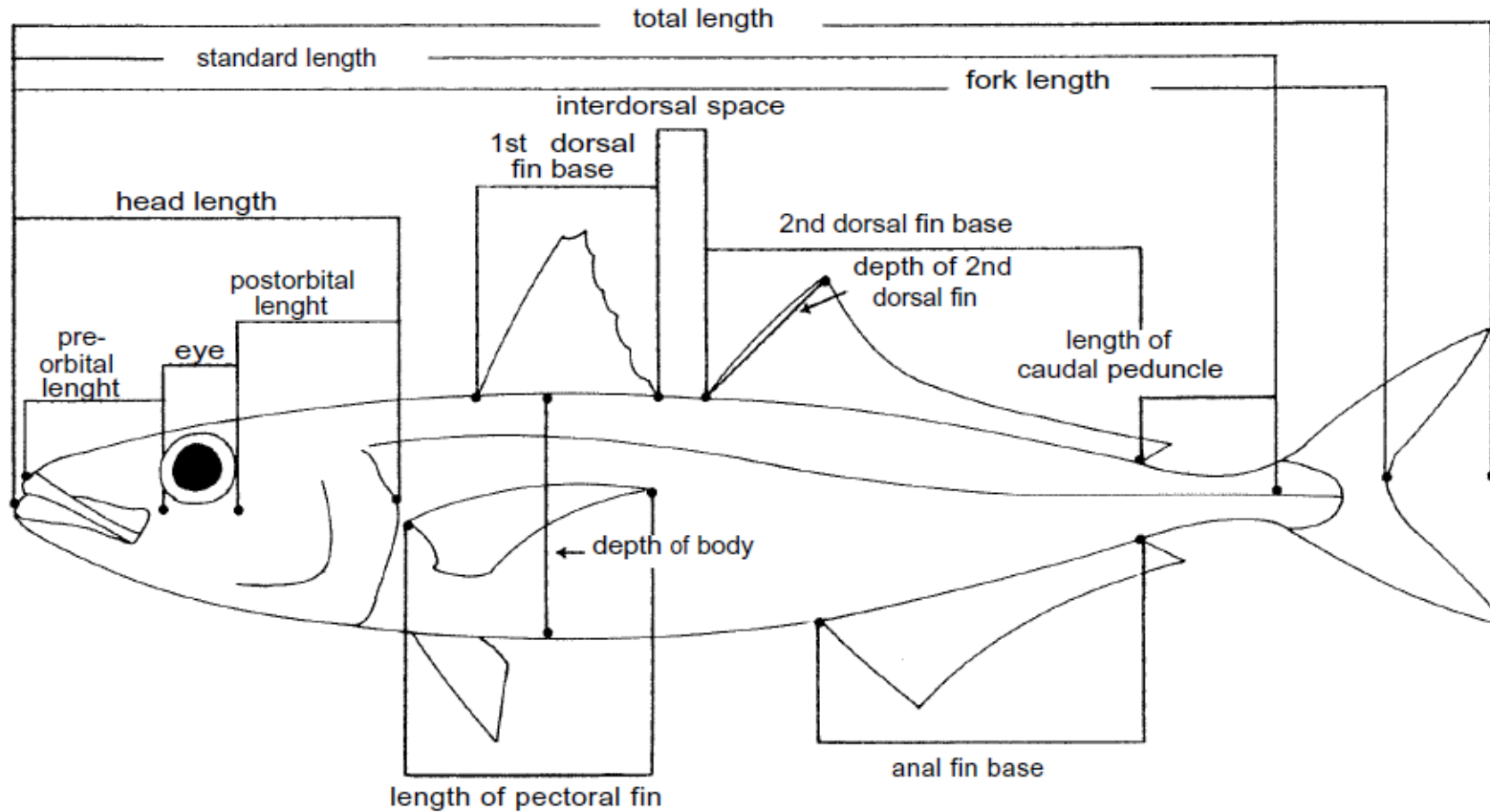
Gillnets in Malvan exhibit a wide variety of craft and gear type, and target a range of species. Gillnets are more selective as compared to trawl nets, and hence have very little incidental catch to sell as trash fish. However, gillnets target the Indian oil sardine frequently, which are then sold to fishmeal/fish oil industries for oil production.



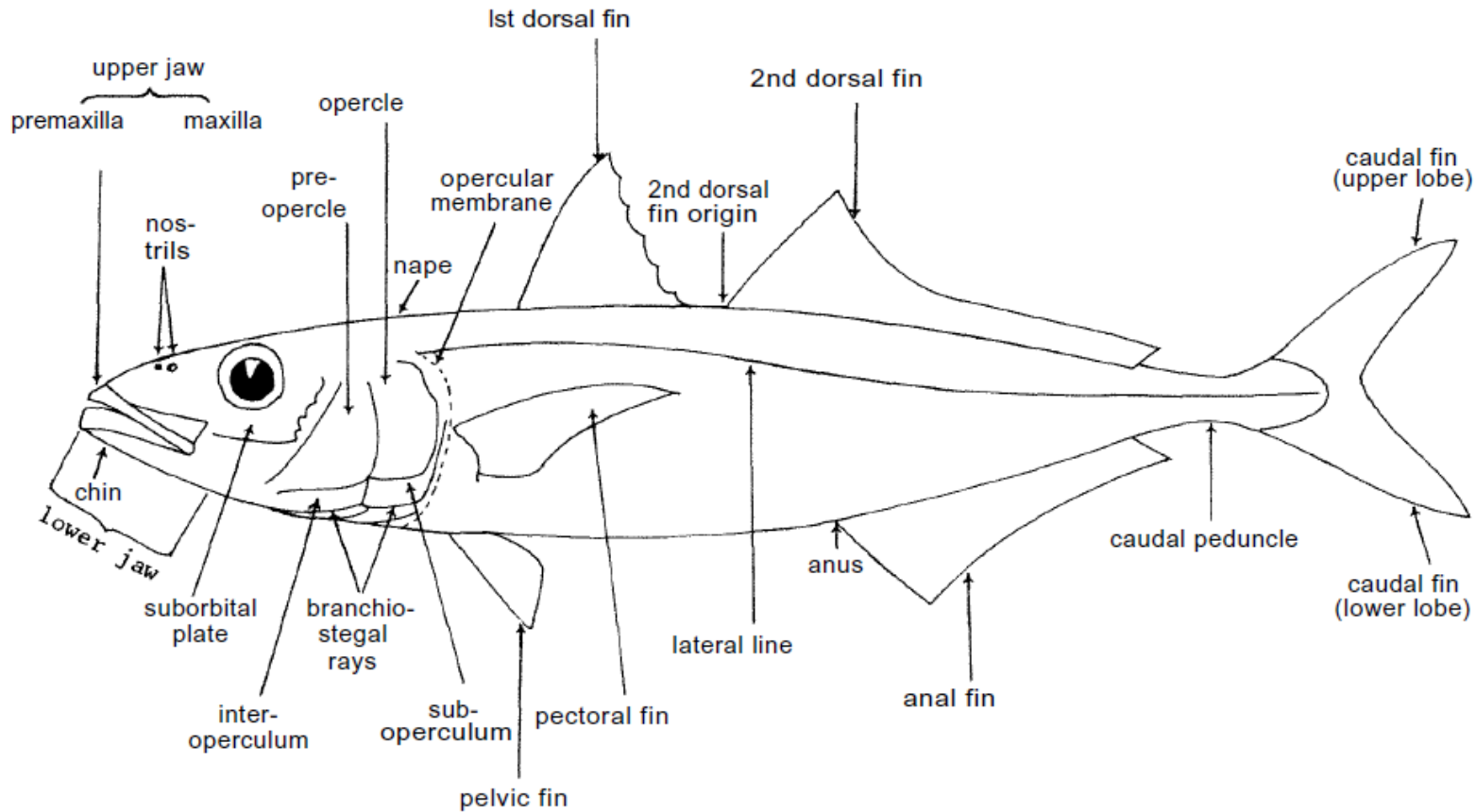
Shore seines, known locally as *Rampani*, are an artisanal form of fishing. These nets are also non-selective, and often have considerable bycatch of juveniles and non-commercial species. This bycatch is sold as trash fish, when present in large enough volumes. Indian oil sardines are also frequently captured, and are sold for oil production.



Fish Morphology and Technical Terms



Fish Morphology and Technical Terms



Trash Fish of Malvan: Common Families

At least 110 species across 50 different families were identified in the trash fish in Malvan. This included fish (bony as well as cartilaginous) as well as invertebrates such as squid, prawn, crab and cuttlefish. More than half of the reduction fish species were small, pelagic and planktivorous (i.e., feeding on plankton).

The most common trash fish species recorded in Malvan (52 species, belong to 29 families) are described in this book. A brief description of each family is provided, followed by descriptions and photos of the trash fish species in the family on individual pages. The common name of each species is provided, along with the local Marathi name wherever possible.

This book is not intended to be a comprehensive guide to all trash fish species; rather, it describes the common species found in this region.

FAMILY: MURAENESOCIDAE

Characteristic Features:

- Commonly called Pike Congers.
- Body long to very long, more or less cylindrical in front, compressed along tail. Snout very pointed, mouth terminal, large, extending well beyond eye; teeth always large, prominent, and sharp.
- Eye relatively large; no lips; nostrils on sides of snout, the anterior one a short, free tube, the posterior one a simple aperture in front of eye.
- No spines in fins; dorsal fin begins more or less over gill opening; pectoral fins always present, although reduced to a minute flap or absent in *Gavialiceps*; no pelvic fins. No scales.
- Some species yellow, others silvery grey to black or completely black in colour.
- Occur in tropical waters from the coast out to the deep sea, but principally on the shelf and slope. Their habits are poorly known, but the shallow water species are apparently nocturnal fishes feeding on bottom-living fishes and crustaceans

Common name: Daggertooth pike conger

Marathi name: Vaam

Latin name: *Muraenesox cinereus*

- Body elongated, cylindrical in front, compressed along tail, head sharply conical.
- Dorsal and anal fins continuous with the caudal fin around the tip of body, pectoral fins well developed.
- Light to dark greyish brown above, lighter below, dorsal and anal fins with narrow black edges.
- Found in coastal waters and estuaries where they inhabit the soft bottom.
- The adult are sold fresh whereas the damaged and juveniles are sold as trash fish.



FAMILY: SYNODONTIDAE

Characteristic Features:

- Commonly known as Lizard Fish.
- Body elongate, usually cylindrical and with adipose fin. Mouth large and terminal, with rows of numerous small, slender and pointed teeth visible even when mouth is closed.
- Green/brown on back, lighter on flanks, with dark blotches or bars down flanks or on fins in certain species.
- Bottom-dwelling fishes, found on open flats or around reefs, down to more than 500m depth. They lie motionless in wait of passing prey, which they seize with rapid darting motions; most species are fish eaters.

Common name: Bluntnose lizardfish

Marathi name: Kharcha/Khari

Latin name: *Trachinocephalus myops*

- Body elongate and tubular. Mouth very oblique; snout short; eyes small and set far forward near tip of upper jaw; a single row of teeth on upper jaw visible even when mouth is closed.
- Anal fin rays 14 or 15; anal fin base much longer than dorsal fin base; pelvic fin rays 8, inner rays much longer than outer rays.
- A series of longitudinal stripes, alternating blue and yellow, cover back and sides; belly pale yellow or gold. A large, dark, oblique spot at upper corner of gill cover. Distal parts of dorsal and caudal fins dusky; other fins pale yellowish.
- Found on sandy bottom and feeds on small fishes
- Marketed fresh, but the damaged fish are sold as trash fish.



FAMILY: CARANGIDAE

Characteristic Features:

- Body extremely variable in shape, ranging from elongated and fusiform to deep and strongly compressed.
- Head varying from moderately long and rounded to short deep and very compressed.
- Snout pointed to blunt, lower jaw protruding to subtended, eye small to large, teeth in jaws in rows or bands.
- Row of enlarged scutes present over the lateral line of the body.
- Anal fin with two anterior spines that are separated from rest of fin by the gap.
- Darker above (green or blue to blackish) and paler below (silvery to white or yellow-golden), some species almost entirely silvery when alive, others with dark or coloured bars or stripes on head, body or fins, some able to change patterns; young of many species with bars or spots.
- Largely continental distributed occurring from brackish environment to the oceanic waters.

Common name: Shrimp Scad

Marathi name: Gizbi/Nalbi

Latin name: *Alepes djedaba*

- Body is compressed, with dorsal and ventral profiles almost equally convex, well developed adipose eyelid on the posterior half of the eye
- Both jaws with a single row of numerous, comb-like teeth, black spot on operculum, with a distinct silver patch above it.
- Rather common near inshore reefs, even in moderately turbid water, often forming large schools. Feeds on small fishes and crustaceans, copepods.
- The adults are sold as fresh whereas the juveniles and the damaged scads are sold as trash fish.



Common name: Razorbelly Scad

Marathi name: Gizbi

Latin name: *Alepes kleinii*

- Body is compressed, with dorsal and ventral profiles almost equally convex, well developed adipose eyelid on the posterior half of the eye.
- Body is slightly deeper than that of *A. djedaba*, black spot on operculum, but without a distinct silver spot above it.
- Found in inshore and coastal waters throughout its range.
- Feeds on planktonic crustaceans and larval fishes.
- The adults are sold fresh as well as dried salted whereas the juveniles and damaged scads are sold as trash fish.



Common name: Cleft belly trevally

Marathi name: Gaba/Nalbat

Latin name: *Atropos atropus*

- Easily recognized by its long pelvic fin into a groove along the midline of the belly.
- Strongly compressed body almost ovate in shape, the eyes lack adipose eye lid.
- Found in shallow coastal waters where it often swims near the surface. Feeds on shrimp, copepods, small fishes and decapod crustaceans.
- The adults are sold fresh whereas the juveniles and damaged fishes are sold as trash fish.



Juvenile



Adult

FAMILY: MENIDAE

Characteristic Features:

- Commonly called Moonfish.
- Body very deep, almost triangular, extremely compressed; breast sharp edged; mouth small, almost vertical, protrusible; teeth limited to villiform bands in jaws.
- Dorsal fin single, long-based, and low, except for a short peak anteriorly; spines thin and flexible, anal fin very long based, commencing at point of insertion of pelvic fins; 2 spines in juveniles, but these and some leading soft rays become overgrown with skin with increasing age; free tips of visible rays splayed out, caudal fin deeply forked.
- Pectoral fins shorter than head length, pelvic fins inserted slightly in front of pectoral fins, with 1 short spine followed by 5 soft rays, the first 2 soft rays fused and greatly elongated.
- Upper sides deep metallic blue, remainder silvery, with a row of round to ovoid, dark slaty-blue spots above and below lateral line.
- Inhabits coastal waters near the bottom on both continental shelves and round major island groups to depths of 200 m; seems to prefer deep water but occasionally enters river estuaries. Schooling; feeds on small invertebrates.

Common name: Moon fish

Marathi name:

Latin name: *Mene maculata*

- Body extremely compressed and very deep vertically, jaw protusible, villiform teeth in jaws.
- Dorsal and anal fin long and narrow, pectoral fins short than head, pelvic fins fused and prolonged in adults, caudal fin forked.
- Dark blue dorsally and silvery white below, several round black spots on dorsal part of the body.
- Found along continental coast and islands, inhabits deeper coastal waters, feeds on small invertebrates.
- They are sold fresh as well as dried in market whereas the juveniles and damaged fishes are sold as trash fish.



FAMILY: CLUPEIDAE

Characteristic Features:

- Commonly called Sardines.
- Small, mostly silvery fishes. with fusiform, sub-cylindrical bodies but sometimes quite strongly compressed, scutes present along belly, scutes are absent in some as well as weakly developed in some species.
- Lower jaw short but deep, fins lack spiny rays, single dorsal fin near mid-point of the body.
- Pectoral fins set low on the body, pelvic fins equidistant between pectoral fin base and anal fin origin, caudal fin forked, scales always cycloid but sheds easily.
- Back usually blue/green, sides silvery, sometimes with a distinct silver band. Darker markings include a black spot behind gill opening, sometimes continued as a series of spots along sides, a dark spot at dorsal fin origin (*Sardinella*), dark dots or spots along back and dark pigmentation on parts of fins.
- Most clupeids are marine, but some can tolerate low salinities and some shads and gizzard shads live temporarily or permanently in freshwater.

Common name: Chacunda gizzard shad

Marathi name: Batlaat

Latin name: *Anodontostoma chacunda*

- Large spot behind gill opening.
- Mouth inferior
- Body depth increasing with size of fish.
- Usually marine coastal, but also occurs in inshore water and in estuaries.
- Feeds on mollusk, copepods, crustaceans, etc.
- Commercially captured and sold fresh or frozen, dried. Juveniles as well as damaged fish are sold as trash fish.



Common name: Bloch's gizzard shad

Marathi name: Batlaat /Barik pala

Latin name: *Nematolosa nasus*

- Distinguished from its sister species by the presence of dark spots behind the gill opening and dorsal fin with last ray filamentous.
- Dark bluish dorsally, silvery below,
- Found in marine, freshwater and brackish waters throughout the Indo-west Pacific.
- Filter feeder and feeds on planktons.
- Consumed fresh or dried and is can make into fish balls.
- The damaged as well as juveniles shads are sold as trash fish.



Common name: Rainbow sardine

Marathi name: Bangi/Tarli

Latin name: *Dussumieria acuta*

- Body is iridescent blue in colour with a shiny gold or brass line below, fades quickly after death.
- Belly rounded and smooth without scutes.
- The tail has the hind margin which is broadly dark.
- Mainly a pelagic inshore species living in shoal.
- Feeds mainly on phytoplankton and small crustaceans.
- Important bony fish to aquaculture as well as to commercial fisheries.
- Sold fresh or dried, damaged ones or juveniles as well as damaged sardines are sold as trash fish.



Common name: Indian oil sardine

Marathi name: Tarli

Latin name: *Sardinella longiceps*

- Body sub-cylindrical with a faint golden spot behind gill opening.
- A faint golden mid-lateral line, distinct black spot at hind border of gill cover.
- Found in coastal waters, a pelagic fish which forms schools and is strongly migratory.
- Feeds mainly on phytoplankton and small crustaceans.
- Most commercial valued fish in Indian market, sold and consumed fresh or dried.
- The damaged as well as juvenile oil sardines are sold as trash fish.



Common name: Goldstripe sardinella

Marathi name: Bangi/Tarli

Latin name: *Sardinella gibbosa*

- Body is slender with golden mid-lateral line down flank.
- Margins of dorsal and caudal fins are dusky, a dark spot on the origin of dorsal fin.
- Found in shallow tropical waters of western Indo-Pacific, forms schools.
- Adults feed on phytoplankton and zooplankton whereas juveniles prefer small crustaceans.
- Commercially important fish, sold and consumed fresh or dried. The damaged as well as juvenile sardines are sold as trash fish.



Common name: Kelee shad

Marathi name: Pedi

Latin name: *Hilsa kelee*

- Body fairly deep and compressed, belly has distinct keel of scutes.
- A black spot behind the gill cover which is followed by up to 10 spots along the flank.
- Found in coastal and pelagic waters, also enters estuaries as they can tolerate the low salinity.
- Mainly feeds on phytoplankton, larvae of crustaceans and mollusc.
- Consumed fresh as well as dried, can be made into fish balls.
- The damaged as well as juvenile hilsa are sold as trash fish.



Common name: Tardoore

Marathi name: Pedi

Latin name: *Ophisthopterus tardoore*

- Body elongate, strongly compressed; belly rounded anteriorly, with a sharp keel of scutes.
- Mouth superior, lower jaw projecting.
- Dorsal fin small, far back on body; pectoral fins with 12 to 14 rays, no pelvic fins; anal fin long.
- Back blue/green or grey, flanks silvery.
- Sold fresh or dried but the damaged fish are sold as trash fish.



Common name: Indian illisha

Marathi name: Bhing/Kanta

Latin name: *Illisha melastoma*

- Body moderately deep, compressed; belly with a sharp keel of scutes. Head large, lower jaw strongly projecting, eye large.
- Dorsal fin short; anal fin long.
- Swim bladder with a pair of tube-like extensions within the muscles above the anterior part of anal fin.
- Scales with vertical striae overlapping at centre or continuous. Back blue/green or grey, flanks silvery.
- Pelagic fish found in coastal waters, marketed fresh but the damaged and juvenile fish are sold as trash fish.



FAMILY: ENGRUALIDAE

Characteristic Features:

- Commonly called Anchovies
- Small, mostly silvery fishes with fusiform, sub-cylindrical bodies but sometimes quite strongly compressed, scutes present along belly, snout usually pig-like.
- No spiny rays in fins, pectoral fins set low on body, pelvic fins usually about half-way between pectoral fin bases and anal fin origin, anal fin short or long, caudal fin normally forked, but small and rounded in the grenadier anchovies (*Coilia*).
- Scales cycloid, smooth to touch, no lateral line.
- Back blue/green or translucent grey, sides silver or with a silver band, darker markings include a dark venulose area behind gill cover and duskiness on fins (especially outer margins). Outer margins of the fin dusky.
- Most anchovies are marine, but some can tolerate low salinities or even freshwater.

Common name: Commerson's anchovy

Marathi name: Salshin

Latin name: *Stolepherous commersonii*

- Body slender, oval in cross-section; belly rounded, with 1 to 4 small needle-like scutes between pectoral and pelvic fin bases.
- Maxilla tip pointed, pelvic fin tips reaching beyond dorsal fin origin; anal fin origin below last dorsal fin rays.
- Body light transparent fleshy brown, with a silver stripe down flanks; back with 2 pigmented areas behind head and a double pigment line before dorsal fin origin.
- Pelagic fish found in coastal waters.
- Marketed fresh or dried whereas damaged anchovies are sold as trash fish.



Common name: Gautama thryssa/Malabar anchovy

Marathi name: Dolsa/Kati

Latin name: *Thryssa malbarica*

- 23-26 keeled scutes on belly, inner part of anal fin deep yellow with whitish margin.
- Presence of black spot on the upper part of the gill opening, as well as spots on cheeks and paired fins.
- Found in Indian ocean, inshore waters, entering into the estuaries.
- Feeds on small fishes and larvae of crustaceans and mollusc.
- The damaged as well as the juvenile malabar thryssa are sold as trash fish.



Common name: Longjaw thryssa

Marathi name: Kaati/Salali

Latin name: *Thryssa setirostris*

- Distinguished from all other thryssa and anchovies species by the long maxilla reaching at least to the tip of pectoral fin, usually to the base of pelvic fin.
- Head with golden tint, anal and caudal fin deep yellow, dark spot behind the gills.
- Found in Indo-Pacific, occurs in inshore waters and estuaries, usually forms schools. Feed on crustacean larvae, amphipod and acetes.
- Sometimes used as bait in tuna fishery, they are also sold as trash fish.



Common name: Moustached thryssa

Marathi name: Khavale/Salali

Latin name: *Thryssa mystax*

- Body fusiform, compressed, belly with sharp keel scutes from isthmus to anus, maxillia reaching to or almost to the base of pectoral fin, anal fin long, tip of the snout level with eye.
- Back blue or green, flanks silvery, a black venulose area behind gill opening, with a golden area before it.
- Dorsal fin lemon yellow with a dusky tip, caudal fin lemon yellow with upper, lower and hind edges black, anal fin clear.
- Found in coast pelagic waters often enters mangroves and adjacent brackish waters. Feeds on small organisms in coastal waters.
- They have little market value and therefore they are sold as trash fish.



Common name: Dussumier's thryssa

Marathi name: Khavale/Salali

Latin name: *Thryssa dussumieri*

- Body fusiform, compressed, belly with sharp keeled scutes from ishtmus to anus, tip of snout at level of eye centre; maxilla long, reaching at least halfway along pectoral fin, anal fin long.
- Back blue/green, flank silvery, a black venulose area behind gill opening, caudal and dorsal fins faint yellow.
- Found in coastal pelagic waters, mostly inshore and sometimes estuarine areas.
- Juveniles feed on diatoms whereas adults feed on copepods, shrimp larvae and cypris.
- Marketed fresh as well as dry whereas the juveniles and damaged fish are sold as trash fish.



FAMILY: APOGONIDAE

Characteristic Features:

- Commonly called Cardinal Fish
- Small percoid fishes, body ovate to elongate, moderately compressed.
- Eyes large, diameter exceeding snout length, mouth large: lower jaw often protruding with bands of small villiform teeth.
- Rear margin of cheek characteristic double edge, which is variously serrated or smooth.
- Colour varies, frequently shades of black, brown, red or yellow; many species exhibit a pattern of dark bars or stripes on a lighter ground colour.
- Inhabit coral and rocky reefs, sand-rubble patches and seagrass beds.
- Not economically important, but few species are seen in the aquarium trade.

Common name: Rip-bar cardinal fish

Marathi name: Lalmasa

Latin name: *Apogon fasciatus*

- Ovoid shaped with large eyes, a blunt snout, a large oblique mouth which reaches the eye and a forked caudal fin.
- Body shows slightly ventral compression and is pinkish white in colour with two dark stripes where one is broad and second is a narrower stripe.
- Inhabits coastal reefs, in sandy or weedy areas.
- Nocturnal, and feed on zooplankton.
- Used in fishmeal as it has little commercial value



FAMILY: CYNOGLOSSIDAE

Characteristic Features:

- Commonly called Tongue Soles
- Tongue-shaped flatfishes with eyes on left side of body, which is highly compressed and tapers posteriorly.
- Mouth asymmetrical, lips sometimes fringed, teeth minute and present on blind side only; a rostral hook present below mouth.
- Dorsal fin reaching forward onto head; both dorsal and anal fins joined to caudal fin; pectoral fins absent; only left pelvic fin present; no spiny rays present in dorsal and pelvic fins.
- Scales small, ctenoid (rough to touch) or cycloid (smooth); lateral lines variable, 0 to 3 on eyed side, 0 to 2 on blind side.
- Usually brownish, sometimes with indistinct cloudy patches or darker spots united into irregular crossbands on eyed side, lighter on blind side; fins greyish.
- Small to medium-sized benthic fish, found mainly on muddy bottoms of shelf areas.

Common name: Malabar tonguesole

Marathi name: Lepp/Lepti

Latin name: *Cynoglossus macrostomus*

- Body flat and elongate, with dorsal and anal fins joined to caudal fin. Eyes on left side of the body with no scale between them, snout short and obtusely pointed.
- Light brown on eyed side with dark brown mottling forming diffuse, irregular crossbands, dorsal and anal fins grey/black.
- Found in sandy and sandy-muddy waters of the continental shelf down to 25m, also enter into estuaries.
- Feeds mostly on bottom living invertebrates, especially worms.
- Sold fresh as well dried in the market. Economically important fish.
- The damaged and juveniles tonguesole are sold as trash fish.



FAMILY: PARALICHTHYIDAE

Characteristic Features:

- Commonly called Flounders
- Most species with eyes on left side of head, no spines present in fins, mouth protractile, asymmetrical, lower jaw moderately prominent; teeth in jaws sometimes canine-like; no teeth on vomer. Dorsal fin long, originating above, lateral to or anterior to upper eye.
- Dorsal and anal fins not attached to caudal fin. Both pectoral fins present, both pelvic fins present, ocular side uniformly brownish or greyish, often with spots, blotches, or ocelli; blind side usually pale.
- Bottom-dwelling predators, usually burrowing partially or almost entirely in sand or soft mud. They are capable of a rapid change in coloration which allows them to match their background almost perfectly.
- Most appear to feed on or near the bottom, but some of the larger species will rise off the bottom to capture prey. Most occur in shallow water, although some species also occur at slope depths (greater than 200 m).

Common name: Largetooth flounder

Marathi name: Bhakas

Latin name: *Pseudorhombus arsius*

- Oval-shaped body with head slightly notch in front of upper eye, eyes are on the left side. Dorsal fin starts in front of its upper eye and of the nostrils on blind side,
- Coniform teeth are present in both jaws and are nearly developed, two dark spot are situated on the central part of dorsal surface, the color of the body varies so that it closely matches the surface of the fish it rest on.
- Found in shallow waters and in estuaries where the bottoms are sandy or muddy and preys on benthic animals.
- Generally sold fresh but the damaged and juvenile soles are sold as trash fish.



Common name: Three spotted flounder

Marathi: Bhakas

Latin name: *Pseudorhombus triocellatus*

- Body deeply ovoid; head length 3.3 to 3.5 times in standard length; upper profile of head without distinct notch in front of upper eye. Snout short, as long as eye diameter.
- Origin of dorsal fin before upper eye and a little before anterior nostril on blind side; anterior ray of dorsal fin prolonged and free from fin membrane.
- Body brownish, with 1 ocellus above and below lateral line and 1 ocellus on posterior third of straight section of lateral line; many indistinct spots and blotches on body.
- Inhabits shallow waters on mud and sand bottoms of the continental shelf. Feeds on small bottom-living animals.



FAMILY: DREPANIDAE

Characteristic Features:

- Commonly called Sicklefish
- Body very deep and strongly compressed; head with a parabolic upper profile; snout short; scales absent in front of eye and on preopercle, mouth terminal and protrusible, forming a downward-pointing tube when protracted, teeth small and setiform in bands on each jaw.
- Dorsal fin with 8 to spines; pectoral fins long, falcate; pelvic fins present; anal fin with 3 spines; hind margin of caudal fin rounded.
- Lateral line strongly arched. Scales of moderate size, finely ctenoid, extending onto dorsal and anal fins.
- Silvery grey above, silvery white below, with dusky spots or grey vertical bars.
- Found in shallow waters around coral and rocky reefs, living in the sea but entering brackish waters. Feeds on bottom-living invertebrates and fishes.

Common name: Spotted sickle fish

Marathi name: -

Latin name: *Drepane punctata*

- Head and body deep, strongly compressed, mouth protrusible; teeth pointed, slender, crowded together, pectoral fins long and pointed, reaching to base of caudal fin.
- Generally silvery with a greenish tinge on upper half of body, 4 to 11 vertical bars of small black spots on upper half of body; margins of dorsal, anal, caudal and pelvic fins are greyish black.
- Found in coastal shallow waters, coral and rocky reefs, sometimes enters estuarine areas. Feeds on bottom living invertebrates and small fishes.
- The adults are sold fresh whereas the juveniles and damaged fishes are sold as trash fish.



FAMILY: HAEMULIDAE

Characteristic Features:

- Commonly called Grunts
- Oblong, compressed, perch-like fishes. Head profile strongly convex; scales present on entire head except front of snout, lips and chin.
- Mouth small or moderate, lips thick chin with 2 pores anteriorly and a median pit, or 6 pores and no pit in *Plectorhinchus*; teeth conical, in a narrow band in each jaw, the outer series enlarged, but no canines Dorsal fin single, with strong spines and soft rays; pectoral fins long, 1st ray sometimes forming a short filament; pelvic fins below base of pectoral fins, with 1 spine and 5 soft rays; anal fin with 3 spines, the second often very strong, and 7 to 9 soft rays.
- Caudal fin truncate or emarginate (rounded in juveniles). Scales ctenoid, small or moderate.
- Highly variable, ranging from uniformly coloured to banded, blotched and spotted.
- Small to medium-sized fishes of shallow coastal waters in tropical and subtropical regions of the world.

Common name: Saddle grunt

Marathi name: English Karkanda

Latin name: *Pomadasys maculatus*

- Body compressed with blunt head, mouth small, upper jaw reaching to below anterior eye margin; teeth in jaws small, two pores and a median pit on chin.
- Body silvery grey, nape and back with a series of incomplete crossbars, dark blotch on the spinous part of dorsal spine, dorsal and caudal fin edged with dark and other fins yellowish.
- Found in coastal waters, near reefs.
- Feeds on small fishes and crustaceans.
- They are sold fresh, spoils at a fast rate, the juveniles and damaged fishes are sold as trash fish.



Common name: Indian grunt

Marathi name: English Karkanda

Latin name: *Pomadasys guoraca*

- Silvery fish with black caudal fin and orange-yellow pectoral, pelvic and anal fin.
- Dorsal fin silver with black tip, lateral line present with scales, mouth inferior.
- Found in coastal waters, near reefs.
- Feeds on small fishes and crustaceans.
- They are sold fresh, spoils at a fast rate, the juveniles and damaged fishes are sold as trash fish.



FAMILY: LEIOGNATHIDAE

Characteristic Features:

- Commonly called Ponyfish.
- Small to medium-sized fishes with oblong or round bodies, moderately to strongly compressed. Top of head with bony ridges and a well-developed nuchal crest or spine, mouth strongly protrusible.
- A single dorsal fin with 8 spines and soft rays, anal fin with 3 spines and soft rays, second dorsal and anal fin spines always the longest, caudal fin deeply emarginate to forked.
- Body covered with small, cycloid scales but top of head scaleless.
- Silvery, often with characteristic markings on body and fins, which are usually helpful in field identification of fresh specimens.
- Bottom-living fishes in shallow coastal waters, with several species entering brackish waters, especially river estuaries.

Common name: Pugnose ponyfish

Marathi name: Savdale kap

Latin name: *Secutor insidiator*

- Mouth strongly oblique, nostrils situated above the eyes.
- Protracted mouth pointing upward, depth of the body is twice or slightly more than standard length.
- Found in shallow waters, forms schools and also enters in the estuarine area.
- Feeds on zooplankton, larval fish and crustaceans.
- Adults are sold as fresh and has commercial value whereas the juveniles as well as damaged fishes are sold as trash fish.



Common name: Orangefin ponyfish

Marathi name: Kap

Latin name: *Photopectoralis bindus*

- Body deep and strongly compressed; mouth pointing forward when protracted.
- Body silvery, with dark vermiculations on back, tip of snout, head and ventral half of body with grey dots which tend to be arranged in rows. The membrane between 2-5 spine bears a bright orange color blotch. Pectorals, pelvic and anal fin colorless.
- Found in coastal shallow waters, usually found in schools.
- Adults are sold fresh as well as dried whereas the juveniles are sold as trash fish.



Common name: Splendid ponyfish

Marathi name: Kengi

Latin name: *Eubleekeria splendens*

- Body compressed and deep, anterior part of dorsal profile more strongly arched than anterior part of ventral profile, snout short and blunt; mouth pointing slightly downward when protracted.
- Belly silvery; back greyish silvery, with faint, grey wavy vertical lines above lateral line in adults, tip of snout dotted black, bases of pectoral fins, margins of dorsal and anal fins bright yellow; usually a black spot on the portion of dorsal fin.
- Found in shallow waters, estuaries, usually found in schools.
- Adults are sold fresh as well as dried whereas the juveniles are sold as trash fish.



Common name: Goldstripe ponyfish

Marathi name: Kap

Latin name: *Karalla daura*

- Body rhomboid and compressed, the dorsal and ventral profiles about equally convex, snout somewhat blunt; mouth pointing downward when protracted.
- Back grey-greenish, belly silvery; black dots on ventral half of body; a golden hue on dorsal half of body and on head, tip of snout black, membrane between 2nd and 6th dorsal spines jet-black, anal fin golden yellow from 2nd spine onward; outer margin of lower caudal fin lobe also yellow.
- Found in shallow waters over muddy bottom
- Adults are sold fresh as well as dried whereas the juveniles are sold as trash fish.



FAMILY: SILLAGINIDAE

Characteristic Features:

- Moderate-sized, elongate perciform fishes. Opercle with small sharp spine; lower part of preopercle horizontal.
- Snout long and conical. Mouth small, terminal; end of upper jaw sliding below preorbital bone, teeth villiform, in broad bands.
- Two separate dorsal fins, the first with 9 to 12 slender spines; the second with 1 spine and 16 to 27 soft rays; anal fin long, with 2 weak spines and 14 to 27 soft rays.
- Scales small, ctenoid; lateral line slightly arched. Swimbladder frequently complex.
- Body silvery to sandy grey or green, sometimes with black spots on body and pectoral-fin base.
- Inshore, bottom-dwelling, schooling fishes with a few species found in deeper water to about 180m

Common name: Silver Sillago/northern whiting/silver whiting

Marathi name: Sula

Latin name: *Sillago sihama*

- Body elongate. Snout pointed; upper head profile slightly convex; mouth small, terminal; villiform teeth present in jaws and roof of the mouth.
- Back light brown, lower ventral flanks and belly whitish or silvery, without dark blotches. Both dorsal fins and caudal fin dusky, other fins pale.
- Found in shallow sandy bottoms of shore, bays as well as estuaries and feeds on small invertebrates.
- Adults are sold and consumed fresh, economically important fish, juveniles and damaged whittings are sold as trash fish.



FAMILY: TERAPONIDAE

Characteristic Features:

- Commonly called Terapons
- Small to medium-sized perch-like fishes with an oblong to oblong-ovate body, moderately compressed. Mouth moderate, protractile, jaw equal, teeth usually in villiform bands.
- Dorsal fin single, with spines and rays, anal fin with 3 spines and rays, pelvic fin base located behind vertical line through base of pectoral fin; caudal fin usually emarginate, rounded or truncate in some freshwater species.
- Lateral line single and complete. Scales adherent, finely ctenoid.
- Body tan or light grey; most marine species with 3 or more longitudinal body stripes.
- Terapons inhabit inshore marine and brackish waters and some species also enter freshwaters.

Common name: Jarbua tarpon/Crescent grunter

Marathi name: Karkanda

Latin name: *Terapon jarbua*

- Body is oblong moderately and laterally compressed, blackish blotch dorsally between spine 3 and 6, caudal fin emarginate.
- Body colour is silvery white with 3-4 curve stripes, the lowermost continuing to the caudal fin, caudal fin is striped with black tip to each lobe.
- Tolerates a wide range of salinity, can be found in coastal waters, estuaries, lagoons and freshwater.
- Feeds on fishes, insects, algae and sand dwelling invertebrates.
- The adults are sold as fresh or dried whereas the juveniles and the damaged fish are sold as trash fish.



Common name: Small scaled terapon

Marathi name: Bani/Karkanda

Latin name: *Terapon puta*

- Elongated and slightly compressed body, a dark blotch on the forward part of spine and rear part of soft rays, caudal fin truncate.
- Silver grey in colour with 3-4 longitudinal parallel stripes which extends from head to caudal fin, the lowermost stripe is pale yellow in colour.
- Found in coastal waters, estuaries and the areas of mangroves and even in fresh water.
- Feeds on small fishes and invertebrates.
- The adults are sold as fresh or dried whereas the juveniles and the damaged fishes are sold as trash fish.



Common name: Large scale terapon

Marathi name: Tikat masa/ Komda

Latin name: *Terapon theraps*

- Body oblonged, compressed, jaws are of equal length having conical teeth arranged in villiform bands, large prominent black blotch on the distal end of the spinous portion of the dorsal fin.
- Dusky green above, white below, body and fin with iridescent shine. Four longitudinal brown stripes extend on the upper side from the head which continues across the caudal fin.
- Distinguished from other *Terapon* species by its large body scales.
- Found in coastal waters, often found in brackish waters.
- Omnivorous in nature, feeds on algae and small fishes.
- Adults are sold fresh in market whereas the juveniles and the damaged tarpons are sold as trash fish.



FAMILY: TRICHIURIDAE

Characteristic Features:

- Commonly called Ribbonfish
- Body extremely elongate, compressed and ribbon-like, large mouth which is not protusible, lower jaw projecting, jaws with string canine teeth, and those in the front of upper jaw are fang-like.
- Dorsal fin low and long and begins shortly behind eye, the anterior spinous part is shorter than the posterior soft portion and these two parts are separated by a distinct notch in some species; anal fin low or reduced to short spinules; pectoral fins are short and low on the body; pelvic fins reduced to a scale-like spine or completely absent in some species.
- Caudal fin either small and forked or absent, the body tapering to a point.
- Lateral line single. Scales absent, body generally silvery, a little darker on back; usually no distinct marks or blotches; dorsal and anal fins sometimes tinged with pale yellow; pectoral fins semitransparent.
- Voracious predators distributed in tropical and temperate seas and generally inhabit deeper waters over the continental shelf and the slope, some species are common in shallow coastal waters.

Common name: Largehead hairtail

Marathi name: Waakti/Baga

Latin name: *Trichuris lepturus*

- Body extremely elongate and strongly compressed, ribbon-like, tapering to a point, mouth large, pelvic and caudal fins absent, scaleless body.
- Fresh specimens are steel blue with silvery reflections, pectoral fins semi-transparent, other fins sometimes tinged with pale yellow; the color becomes uniform silvery grey some time after death.
- Found in the coastal waters usually to the depth of 100m, often comes near to the shore at night. Feeds on wide variety of small fishes such as sardines, ponyfishes, mullets, halfbeaks, croakers, etc. and crustaceans.
- Economically important fish, sold fresh as well as dried, the damaged ribbonfishes are sold as trash fish.



FAMILY: PLATYCEPHALIDAE

Characteristic Features:

- Elongate fishes with head moderately to strongly depressed. Mouth large; lower jaw longer than upper; fine teeth on jaws, canines present in a few species.
- Two dorsal fins, well separated, pelvic fins thoracic in position, set far apart toward sides of body.
- Lateral line complete, scales ctenoid, usually embedded on head and breast.
- Dark above, pale below; the dark colours with various shades of brown, grey or black; brighter hues of reddish, purplish or greenish in some.
- Benthic fishes found on mud or sand bottoms of shelf areas at depths of about 75m or less; a second group of species are associated with rocky shores or coral reefs.

Common name: Rough flathead

Marathi name: Chatiro

Latin name: *Grammoplites scaber*

- Body elongated and head moderate to strongly depressed, large mouth with lower jaw larger than upper jaw.
- All or most pored scales of lateral series bearing a backward directed spine. 12 anal fin rays.
- Body and head are brownish above and whitish below, caudal fin dusky.
- Benthic fish found on sand and mud bottoms in shallow areas of estuaries, near shore water up to the depth of 25m.
- Adults are sold fresh whereas juveniles as well as damaged flat heads are sold as trash fish.



FAMILY: SCORPAENIDAE

Characteristic Features:

- Moderately compressed to robust fishes, usually bass like in appearance, with large spiny heads. Mouth moderate to large, terminal, oblique, protractile; teeth usually villiform arranged in bands.
- Eyes moderate to large; preopercular margin with 3 to 5 spines, the uppermost 3 better developed; opercle with 2 divergent spines or a single spine; other spines scattered on head.
- A single dorsal fin, usually notched at posterior end of spinous part, with 8 to 18 spines and 4 to 14 segmented rays; anal fin with 2 to 4 spines and 5 to 14 segmented rays; posterior most segmented rays of dorsal and anal fins split to base in most species, appearing as two rays but counted as one; pectoral fin broad-based, large, fanlike, with 11 to 23 rays; pelvic fins thoracic in position, with 1 spine and 3 to 5 branched or simple rays.
- Caudal fin rounded to square-cut, never forked. Venom glands associated with fin spines.
- Inshore scorpionfishes are mostly brown or variously mottled and barred with dark pigment on a lighter background, often with a pale or reddish belly. Those from deeper water are mostly red, often with spots of darker red, brown or black and with white skin filaments.

Common name: Grey stingfish

Marathi name: Kengi

Latin name: *Minous monodactylus*

- Body elongate. Snout pointed; upper head profile slightly convex; mouth small, terminal.
- The first dorsal spine is longer and well separated from second spine, anal fin with two spines and rays, pectoral fins reach to anterior of anal fin.
- Dorsal part of body with pale bars and stripes; ventral surface usually pale, without markings. Dorsal fin with a large black area or spot, lateral side of pectora, pelvic and anal fin blackish, caudal fin with 2 broad vertical bars.
- Found on soft bottoms of the continental shelf, from near shore to a depth of about 55m.
- Venomous and hence inedible, this species is used only as trash fish.



FAMILY: ARIIDAE

Characteristic Features:

- Commonly called Sea Catfish
- Medium to very large fishes. Snout and head rounded to depressed, head covered with a bony shield.
- Teeth in jaws always fine and villiform, in curved bands; mouth terminal to inferior.
- First dorsal fin short with a long, often rough spine, a short adipose dorsal fin present, situated above anal fin; pectoral fins low on sides, with a strong, spine and 7 to 13 rays; pelvic fins with 6 rays; anal fin with 14 to 30 ray; caudal fin forked with 13 branched rays
Scales absent, lateral line complete.
- Usually greyish to metallic blue, dark grey or brown on back and sides, sometimes with black patches paler to white below; a silvery lateral stripe present in some species.
- Sea catfishes occur mostly in marine, brackish and fresh waters of warm temperate and tropical regions.

Common name: Blackfin sea catfish

Marathi name: Shendti/Shingala

Latin name: *Arius jella*

- Pectoral spine longer than the dorsal spine. First dorsal fin ray prolonged into a long filament
- The median longitudinal groove becomes narrow and deep posteriorly and reaches nearly to the base of the occipital process.
- Palate teeth globular, in a single large irregularly ovate patch, not fully formed, with loosely packed teeth, inner margins of patches not straight.
- Body greyish-silver, becoming white on the sides and below.
- Found in marine coastal and estuarine waters on the muddy or sandy substratum. Feed on small invertebrates and small fishes.
- They are sold fresh but the damaged and juveniles are sold as trash fish.



FAMILY: PLOTOSIDAE

Characteristic Features:

- Small to moderately large-sized catfishes. Body elongate, compressed, tapering to a point posteriorly. Head broad, dorsal profile arched or straight from tip of snout to dorsal fin origin.
- Teeth on upper jaw conical; teeth on lower jaw and palate conical and/or molar-like
- The first dorsal fin is short-based, with 1 serrated spine and 4 to 6 soft rays; second dorsal, caudal fin, and anal fin confluent; second dorsal fin with 69 to 143 soft rays, its origin approximately opposite pelvic fin insertion; caudal fin rounded to pointed, with 6 to 11 rays; anal fin base long, with 58 to 131 soft rays; adipose fin absent; pectoral fins with 1 serrated spine and 9 to 6 soft rays; pelvic fin with 10 to 16 soft rays
- Scales and bony plates absent. Lateral line complete, ending near base of caudal fin rays. Colour in preservative: back and sides uniformly tan, brown or black, or with 2 or 3 whitish to yellowish lateral stripes; belly usually paler or white. Fins often with dark borders.
- Occur in marine, brackish and freshwaters of tropical and warm-temperate regions.

Common name: Striped eel catfish

Marathi name: Shendti/Shingala

Latin name: *Plotosus lineatus*

- Head moderately large, profile slightly arched from tip of snout to dorsal fin origin; 4 pairs of barbels, the nasal barbels not extending well beyond posterior borders of eyes, maxillary barbels extending slightly beyond.
- First dorsal fin with 1 spine and soft rays
- Brown or black above, whitish below, with 2 or 3 stripes (white or yellow in life); 2 of the stripes extend from snout to near caudal peduncle; the third stripe extends from belly backward to caudal peduncle; stripes absent in some specimens; margins of median fins blackish. Small juveniles may have a dark belly.
- Found on reefs, along open coasts, in estuaries, and in tidal pools. Juveniles form dense aggregations.



FAMILY: BALISTIDAE

Characteristic Features:

- Small or medium-sized fishes, usually up to 60cm in length, with deep, moderately compressed bodies encased with very thick, tough skin, scales above pectoral fin base usually enlarged and slightly separated.
- Gill opening a relatively short vertical to oblique slit in front of the pectoral fin base, mouth small and usually more or less terminal; teeth heavy, 8 in an outer series in the upper jaw and 8 in the lower jaw.
- Three dorsal fin spines, the second spine more than one-half the length of the first; anal and pectoral fin rays branched; pelvic fins and spines rudimentary or absent, represented by a series of 4 pairs of enlarged scales encasing the end of pelvis. Lateral line inconspicuous.
- Coloration variable, sometimes black or drab brown, grey or greenish, but often with strikingly marked and vivid patterns.
- Usually solitary, ranging in depth from the coastline to about 90 m, with some species being primarily pelagic in open water and others primarily benthic around rocky and coral reefs.

Common name: Redtoothed triggerfish

Marathi name:

Latin name: *Odonus niger*

- Body deep and laterally compressed, with the large rectilinear scale plates of the thick skin forming regular rows. The scales of the cheek in an even, relatively complete covering.
- Scales enlarged above the pectoral fin base adults greatly prolonged above and below; anterior rays of dorsal and anal fins elevated, the margins prominently concave in profile.
- Caudal peduncle almost round in cross section.
- Ground color of body and fins blackish brown, usually with a darker stripe from mouth to pectoral fin base; posterior margin of caudal fin with a lunar-shaped white bar; teeth red.
- This species is generally not consumed and hence only sold for trash fish.



FAMILY: OSTRACIIDAE

Characteristic Features:

- Small fish (up to 40cm in length), the body almost completely encased in a bony shell, or carapace formed of enlarged, thickened scale plates, usually hexagonal in shape and firmly sutured to one another.
- Gill openings relatively short, vertical to oblique slits in front of pectoral fin bases; mouth small.
- The carapace has openings for mouth, eyes, gill slits, pectoral, dorsal and anal fins and for the flexible caudal peduncle, and is either triangular in cross section, rectangular or pentangular.
- Mouth terminal, with fleshy lips; teeth moderate, conical, usually less than 15 in each jaw.
- Spinous dorsal fin absent; most dorsal, anal and pectoral fin rays branched; pelvic fins absent. Lateral line inconspicuous.
- Color variable, with general ground colors of either grey, green, yellow or brown, usually with darker or lighter spots, blotches, lines and reticulations.
- Slow-swimming benthic-dwelling fishes occurring on rocky and coral reefs and over sand, weed or sponge covered bottoms to depths of 100m.

Common name: Longhorn cowfish

Marathi: Kend/Kateri gaend

Latin name: *Lactoria cornuta*

- Deep body with 5 ridges and almost square in cross section, ventrally wide than dorsally. Recognizable by its long horns that protrude from front of the head, like cow or bull. Caudal fin long.
- Yellowish brown with scattered bluish or blackish spots, caudal fin yellow with scattered blackish spots, a blackish ring around mouth.
- Found near coral reefs in lagoons, on reef flats, they are often solitary and territorial, and live around sand or rubble.
- Omnivorous, feeding upon benthic algae, small fishes, crustaceans and other invertebrates.
- Not used for consumption and are sold as trash fish.



FAMILY: TETRADONTIDAE

Characteristic Features:

- Small to moderate-sized fishes with a heavy, blunt body capable of rapid inflation by intake of water or air. Head large and blunt, jaws modified to form a beak of 4 heavy, powerful teeth, 2 above and 2 below.
- Eyes located high on head. Pelvic fins absent; dorsal and anal fins located far posteriorly, containing no spines, but has soft rays; caudal fin truncate, rounded, or emarginate to somewhat lunate.
- Lateral lines, when present often indistinct, forming an interconnecting pattern on the sides of head and body, but quite distinct in some genera. Typical scales absent, but numerous small spiny prickles often present on back and/or belly, sometimes on sides.
- Most species are mottled and variegated on back and sides, sometimes with spots of various sizes and colours, while others are of plain coloration.
- Inhabitants of tropical and temperate seas, most frequent in shallow inshore waters, sometimes entering brackish and fresh waters, but a few species are pelagic. Usually found alone, although some species school together, especially for mating purposes

Common name: Smooth blaasop

Marathi name: Gaend

Latin name: *Lagocephalus inermis*

- Dorsal part of body without prickles, belly covered with prickles.
- Greenish or dark green above, silvery below, distinguished from other *Lagocephalus* species by the black gill opening.
- Reef associated fish which are found in tropical and sub-tropical waters and also enter estuaries.
- Feed on algae and invertebrates, the adults will also crack open and eat clams, mussels and shell fishes with their hard beak.
- Poisonous and hence inedible, sold as trash fish.



Common name: Milk-spotted puffer

Marathi name: Kand/English gaend

Latin name: *Chelonodon patoca*

- Dorsal part of body without prickles, belly covered with prickles.
- Grey to brown above with large white spots, coloration fades to white below.
- Reef associated fish which are found in tropical and sub-tropical waters and also enter estuaries.
- Feed on algae and invertebrates, the adults will also crack open and eat clams, mussels and shell fishes with their hard beak.
- Poisonous and hence inedible, sold as trash fish.



FAMILY: TRIACANTHIDAE

Characteristic Features:

- Deep compressed bodies; skin moderately thick with numerous scales not individually easily discernible to the unaided eye, each scale bearing upright spinules and having a rough, shagreen-like appearance.
- Mouth small and usually terminal and molariform teeth.
- Dorsal fin has 6 spines, dorsal fin rays 20 to 26, anal fin rays 13 to 22; caudal fin deeply forked and caudal peduncle distinctly tapered; pelvic fin represented by a large spine which is movably articulated with anterior end of pelvis and capable of being locked erect by a flange on the pelvis; most dorsal, anal and pectoral fin rays branched.
- Lateral line inconspicuous. Generally silvery, with upper half of body dusky, with or without darker blotches.
- Tripod fishes are benthic, occurring usually on flat, sandy or weed-covered bottoms. They feed on bottom living invertebrates.

Common name: Short-nosed tripodfish

Marathi name: Tikat masa/ Komda

Latin name: *Triacanthus biaculeatus*

- Body deep and compressed. Snout moderately acute, the upper profile straight to concave.
- Visible dorsal fin spines 5, the second much less than half the length of the first.
- Upper side dusky silver and lower side creamy silver, with a silvery stripe along midside of body, the pectoral fin prominently yellow; pectoral fin axil dusky.
- Found in shallow coastal waters and estuarine areas on the flat bottom. Feeds on benthic invertebrates.
- Has little economical value, when caught it is sold as trash fish.



FAMILY: MATUTIDAE

Characteristic Features:

- Carpace round with a strong spine at a junction of antero and postero-lateral margins, exopodite widest proximally, tapering to a point distally; flagellum absent.
- Front narrow, antennae rudimentary, chelipes subequal, walking legs natatorial, P2-P4 with dactyl more or less lanceolate, P5 with last articles paddle-like.
- Male abdomen with 5 segments, female opening is called sternal and male coxal.
- G1 elongated and columnar, distal tip rounded whereas G2 is long and narrow, exceeding the length of G1

Common name: Yellow moon crab

Marathi name:

Latin name: *Ashtoret lunaris*

- Body rather circular with a pair of long spikes on the sides, carapace surface granular, walking legs end in paddle-shaped tips.
- Colours beige to yellow with little maroon dots evenly sprinkled on the surface of the body, paddles have large black blotches with smaller dark spots on legs.
- Found on sandy and muddy shores especially near seagrass beds.
- Feed on small shellfish, worms, small fishes and small crabs.
- Have little or no market value so when caught they are sold as trash fish.



FAMILY: PORTUNIDAE

Characteristic Features:

- Carapace usually broader than long and broadest between last pair of antero-lateral teeth, transversely hexagonal to transversely ovate.
- Regions of the carapace not well defined, antero-lateral teeth varying from 5-9.
- Antennules and antennae short, orbits broad, eyes conspicuous, buccal frame quadrate, carpus of third maxillipeds articulated at inner dorsal margin of merus.
- Dactylus of P5 suboval or lanceolate, rarely styliform and always dorso-ventrally flattened.
- P5 generally modified for swimming with at least propodus and dactylus paddle-like.
- Male abdomen with segments 3-5 fused to varying degrees, male openings coxal, female openings sternal (vulvae).

Common name: Blue swimming crab

Marathi name:

Latin name: *Portunus pelagicus*

- Carapace rough to granulose, front with 4 triangular teeth, 9 teeth on each anterolateral margin, external tooth 2-4 times larger than the precedent, chelae elongated more in males conical tooth at base of fingers.
- Last two segments paddle-like, male are coloured with blue markings whereas females have dull green markings.
- Found in sandy and sand-muddy depths in shallow coastal waters, including reefs, mangroves, seagrass and algal beds.
- Exclusively carnivorous and feeds on hermit crabs, bivalves, small crabs, small fishes, etc.
- Adults are sold fresh and have great commercial value whereas juveniles and damaged crabs are sold as trash fish.



Common name: Three spot swimming crab

Marathi name:

Latin name: *Portunus sanguinolentus*

- Carapace finely granulose, 9 teeth on each anterolateral margin, last tooth 2-3 times larger than preceding teeth, chelae elongated in male.
- Larger chelae with conical tooth at base of fingers, olive green in colour with three prominent maroon to red spots on carapace.
- Found in sandy and sand-muddy depths in shallow coastal waters, including reefs, mangroves, seagrass and algal beds.
- Exclusively carnivorous and feeds on hermit crabs, bivalves, small crabs, small fishes, etc.
- Adults are sold fresh and have great commercial value whereas juveniles and damaged crabs are sold as trash fish.



Common name: Crucifix crab

Marathi name:

Latin name: *Charybdis feriata*

- Carapace ovate, 5 distinct teeth on each anterolateral margin. Distinctive pattern on longitudinal stripes of maroon and white, usually with distinct white cross on median part of gastric region.
- Legs and pincers with numerous scattered with white spots.
- Found in sandy and sand-muddy depths in shallow coastal waters, including reefs, mangroves, seagrass and algal beds.
- Exclusively carnivorous and feeds on hermit crabs, bivalves, small crabs, small fish.
- Adults are sold fresh and have great commercial value whereas juveniles and damaged crabs are sold as trash fish.



FAMILY: CALAPPIDAE

Characteristic Features:

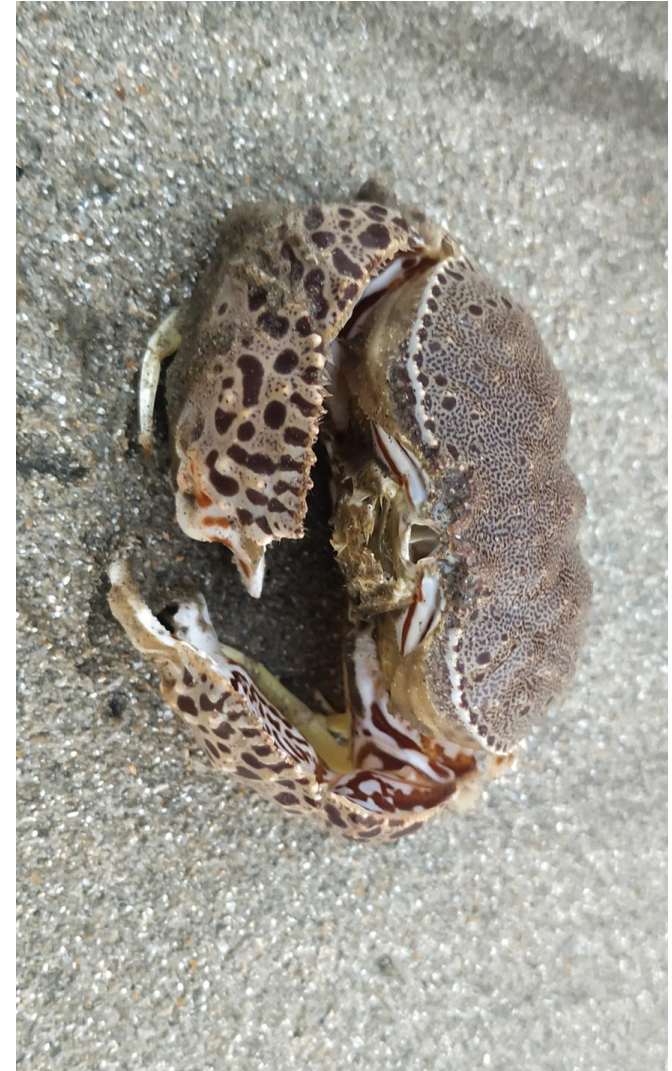
- Carapace more or less circular or transversely ovate. Often a postero-lateral vault-like expansion over the ambulatory legs.
- Antennules folding obliquely or nearly vertically. Antennae generally small. Third maxilliped not elongate or acute, not completely closing the buccal cavern and not concealing the palp in repose; exopodite broad.
- Afferent branchial openings having the normal position in front of the bases of third maxilliped. Efferent branchial channels together forming a deep channel in the endostome, covered by a pair of lamellar process from the first maxillipeds.
- Chelipeds practically symmetrical in size but characterized by a strong heterodonty; chela of a great size and so curved as to shut closely against the pterygostomial region.
- Male abdomen with some segments fused. Female openings sternal. Male openings coxal. G2 long and narrow, exceeding the length of G1

Common name: Common box crab

Marathi name:

Latin name: *Calappa lophos*

- Surface is smooth, carapace with string lateral position, ground yellowish in colour, red dots on posterior side of carapace.
- Outer surface of cheliped with red streaks and spots.
- Found in sandy-muddy areas and feeds on molluscs and hermit crabs in gastropod shells.
- Have no market value so when captured, they are sold as trash fish.



FAMILY: SQUILLIDAE

Characteristic Features:

- Commonly called Mantis Shrimp
- Shrimp-like or lobster-like animals with large movable eyes, a very short head or carapace covering only 1/3 of the body, only 3 walking legs, a long flattened tail (including thoracic and abdominal segments) with a well-developed tail fan.
- The body may be cylindrical or somewhat flattened dorsoventrally. The thorax is shield-shaped and the abdomen is conspicuously segmented.
- Large, conspicuous 'raptorial' claws (second pair of legs) resembling those of a praying mantis.
- Colors vary considerably among and within species, and between sexes.
- All mantis shrimp species are predatory, and predominantly inhabit benthic habitats.
- Although frequently captured by bottom trawlers, mantis shrimp generally have low commercial value.

Common name: Mantis shrimp/Small eyed squillid

Marathi name: Khatvi

Latin name: *Miyakella nepa*

- Denticles large and rounded. Overall dorsal colour olive grey-green with terminal spines pink, distal outer appendage dark blue-green distally, exopod proximal segment yellow.
- The sixth and seventh thoracic segments are large and bilobed. Telson nearly as long as broad, dorsally flattened, media carina sharp terminating in a spine, bilobed cornea.
- Found in shallow, tropical and subtropical marine habitats where they feeds on small fishes and crustaceans.
- Generally not consumed, and is sold as trash fish.



FAMILY: LOLIGINIDAE

Characteristic Features:

- Adults have tentacular club with four rows of suckers on the manus. Arm suckers in two rows. The body is fusiform of variable shape.
- The fins are terminal-lateral and united posteriorly. The buccal membrane has seven lappets, usually beset with small suckers. Photophores occur rarely.
- The body form of hatchlings is always bullet shaped with well developed terminal fins. Tentacles and arms are well developed; the fourth arm is larger than the first.
- Generally, no great changes in body form from hatchling to adult. Young forms of the Subgenera *Loligo* and *Alloteuthis* are very similar and therefore difficult to distinguish at the species level.

Common name: Indian ocean squid/Indian squid

Marathi name: Manki/Mhakul

Latin name: *Uroteuthis duvaucelii*

- Mantle moderately long, slender, cylindrical, tapering from middle, posterior end blunt. Head small, broad, strong pit-like excavation present on ventral side in between the eye lobes to accommodate the free end of funnel, fins rhombic and broad.
- Fresh specimen whitish, chromatophores are scattered all over the body, denser on dorsal surface.
- Found in shallow coastal waters and also in deep waters. Feeds on small fishes, crustaceans and small squids.
- One of the most commercially important squid species.
- Small and damaged squids are sold as trash fish.



FAMILY: SEPIIDAE

Characteristic Features:

- The eyes are of myopside type. The arms are short and the rather long tentacles are retractable: they can be withdrawn into the head cavities.
- The 4th pair of arms is longer than the others and the left one is hectocotylized .
The mantle is oval, its width is about half of its length and it is not fused with the head, which is much narrower.
- The body is flattened dorso-ventrally, the fins run like two narrow ribbons along the lateral side of the mantle.
- The eggs of *Sepia* look like blue grapes. The internal shell, made of calcareous plate, is present and is situated under the skin of the dorsum.

Common name: Spineless cuttlefish

Marathi name: Catal

Latin name: *Sepiella inermis*

- Mantle oblong. Posterior gland and gland pore pigmented reddish. protective membranes on arms in both sexes wide, well-developed, arm suckers tetraserial.
- Hectocotylus present on left ventral arm: 10 rows of reduced suckers proximally. Club with 12 to 24 suckers in transverse rows, cuttlebone outline oval, broad, dorsal median rib distinct, spine absent.
- Greyish brown, dorsal mantle has more than 7 reddish patches adjacent to base of fins.
- A demersal, shallow water species found to 40 m depth and feeds on small fishes



References

- [1] Funge-Smith, S., Lindebo, E., & Staples, D. (2005). Asian fisheries today: The production and use of low value / trash fish from marine fisheries in the Asia-Pacific region. Rap Publication 2005/16, 47.
- [2] Lobo, A. S., Balmford, A., Arthur, R., & Manica, A. (2010). Commercializing bycatch can push a fishery beyond economic extinction. Conservation Letters, 3(4), 277–285.
- [3] Commercialisation of Fisheries Bycatch: <https://www.dakshin.org/commercialisation-of-fisheries-bycatch/>
- [4] FAO Species identification sheets for fishery purposes: Western Indian Ocean. Fishing Area 51. <http://www.fao.org/3/ad468e/ad468e00.htm>
- [5] FishBase. <https://www.fishbase.de/>
- [6] CCARI: Fish Database. <https://ccari.res.in/fishdb/index.php>
- [7] SeaLifeBase. <https://www.sealifebase.ca/>
- [8] Finfishes of the Gulf of Mannar. <https://www.dakshin.org/fin-fishes-of-the-gulf-of-mannar/>
- [9] Sharks and Rays of Malvan. [https://www.researchgate.net/publication/344340417 Sharks And Rays Of Malvan](https://www.researchgate.net/publication/344340417_Sharks_And_Rays_Of_Malvan)

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