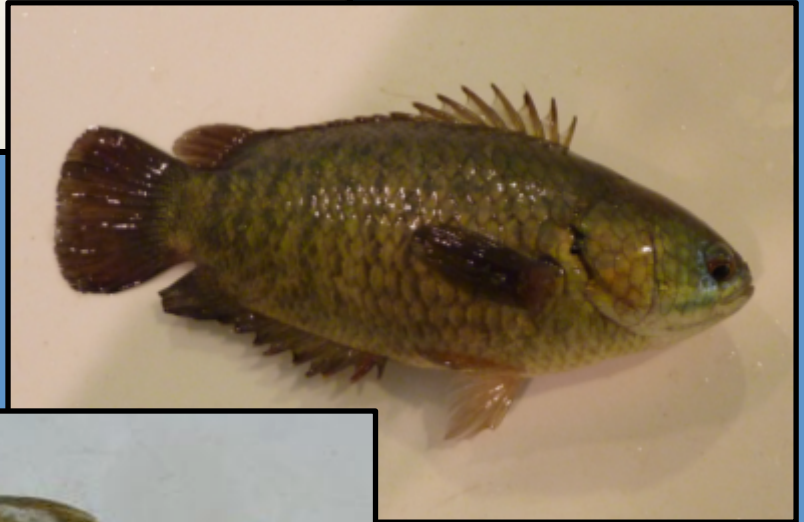


Lower Kinabatangan Freshwater Fish Database



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About the Guide

This database aims to provide a descriptive and visual guide of freshwater fish within the Kinabatangan River, Sabah Borneo. A total of 24 fish species were identified, sampled and studied in this region between October 2012 and March 2013, with more to be added in the future. Information concerning diet, behaviour and habitat preferences of each fish species are also included.

Information for this guide has been compiled from Inger and Chin: The Freshwater fishes of Northern Borneo, 2002, 2nd Edition; Atack: A Field Guide to the Fishes of Kuching Rivers, Sarawak, Malaysian Borneo, 2006, 1st edition; Fishbase and Seriously Fish websites (www.fishbase.com and www.seriouslyfish.com), and our own field observations in the Lower Kinabatangan River.

Photographs by:

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Or taken directly from:

- **www.fishbase.com**
- **www.seriouslyfish.com**



Contents Page

Family Anabantidae

Anabas testudineus	4
--------------------------	---

Family Ariidae

Arius maculatus	5
Hemilarius stormii	6
Osteogeneiosus militaris	7

Family Bagridae

Mystus gulio	8
--------------------	---

Family Channidae

Channa striata	9
----------------------	---

Family Cyprinidae

Barbonymus gonionotus	10
Cyclocheilichthys repasson	11
Dangila sabana	12
Leptobarbus hoevenii	13
Luciosoma pellegrini	14
Nematabramis everetti	15
Osteochilus ingeri	16
Puntius orphoides	17
Rasbora tornieri	18

Contents Page

Family Eleotridae

Oxyeleotris marmorata	19
-----------------------------	----

Family Engraulidae

Setipinna melamochir	20
----------------------------	----

Family Loricariidae

Pterogoplichthys pardalis	21
---------------------------------	----

Family Megalopidae

Megalops cyprinoides	22
----------------------------	----

Family Pangasiidae

Pangasius hypophthalmus	23
-------------------------------	----

Family Siluridae

Kryptopterus kryptopterus	24
Kryptopterus parvanalis	25
Wallago maculatus	26

Family Toxotidae

Toxotes chatareus	27
-------------------------	----

Anabas testudineus

Common Name: Climbing Perch

Malay Name: Puyu



Description:

- Dark to pale green in colour, light underside changing to dusky olive dorsally.
- Dorsal and anal spines both leading to soft rays.
- Compressed fusiform body with homocercal rounded caudal fin.
- Large and regularly arranged scales, 4-5 rows between eye (dark red iris) and preoperculum rear edge.
- Dark spot found on posterior edge of opercle.

Size: Adult: 10-25 cm

Habitat and behaviour:

- Prefers faster flowing waters such as rivers and tributaries. Found in freshwater and brackish habitats, it possesses the ability to breath air for hours at a time and has been observed moving over land from one water body to another, hence the name 'Climbing Perch'.

Diet: Omnivorous, feeding on crustaceans, insects and vegetation.

Arius maculatus

Common Name: Spotted Catfish

Malay Name: Lundu



Description:

- Dark grey dorsal colour, light grey silvery ventral colour.
- Singular dorsal and both pectoral spines are venomous, providing protection. Additional soft ray dorsal and anal fins present.
- Fusiform body with homocercal forked caudal fin.
- Can be confused with other Ariidae species, important to note mouth is located in terminal position, with two pairs of mandibular barbels located on lower jaw and a small pair of maxillary barbels above the mouth.
- Often confused with *H. stormii*, can be primarily identified with comparison of barbels.

Size: Adult: 10-20 cm

Habitat and behaviour:

- A benthopelagic species that can be found in marine, freshwater and brackish environments. Males store and incubate eggs in mouth. Sometimes observed displaying schooling behaviour.

Diet: Predaceous, feeding on small fish and invertebrates.

Hemilarius stormii

Common Name: None

Malay Name: Kelabu



Description:

- Dark grey dorsal colour, light grey silvery ventral colour.
- Singular dorsal and both pectoral spines are venomous, providing protection. Additional soft ray dorsal and anal fins present.
- Fusiform body with homocercal forked caudal fin.
- Can be confused with other Ariidae species, important to note mouth is located in terminal position with a large pair of maxillary barbels and a smaller pair of mandibular barbels.
- Often confused with *A. maculatus*, can be primarily identified with comparison of barbels.

Size: Adult: 10-20 cm

Habitat and behaviour:

- A benthopelagic species that can be found in marine, freshwater and brackish environments. A solitary predator, preferring fast flowing habitats such as rivers and tributaries.

Diet: Predaceous, feeding on small fish and invertebrates.

Osteogeneiosus militaris

Common Name: Military Catfish

Malay Name: Lundu



Description:

- Malaysian individual displays colour of slate blue, light ventrally with a darker head.
- Singular dorsal and both pectoral spines are venomous, providing protection. Additional soft ray dorsal and anal fins present.
- Fusiform body with homocercal forked caudal fin.
- Can be confused with other Ariidae species, important to note mouth is located in terminal position with no mandibular barbels.
- Underside of body is flattened, the morphology shows this species is partially benthic.

Size: Adult: 10-30 cm

Habitat and behaviour:

- A benthopelagic species that can be found in marine, freshwater and brackish environments. A thick mucus can be found on the body surface especially around the head.

Diet: Predaceous, feeding on small fish and invertebrates.

Mystus gulio

Common Name: Long-whiskered Catfish

Malay Name: Nyingan baong



Description:

- Dull coloured body, with greenish dorsal shading.
- It possesses 3 pairs of barbels in total and has long maxillary barbels.
- Fusiform body with homocercal forked caudal fin.
- Males have an elongate genital papilla in front of the anal fin.
- Unlike the Ariidae family this species does not possess venomous barbs in the dorsal and pectoral fins, allowing easier handling if caught.

Size: Adult: 15-30 cm

Habitat and behaviour:

- Primarily found in brackish water, this fish is often found in larger freshwater bodies and is very rarely found in smaller tributaries and streams. Noted to be diurnal. Often congregates in schools of 10-25 individuals.

Diet: Predaceous, feeding on small fish and invertebrates.

Channa striata

Common Name: Snakehead Murrel

Malay Name: Haruan



Description:

- Dark brown and green mottled appearance on dorsal surface and sides, white speckled colouration on ventral surface.
- Large depressed head with distinct similarities to a snake, leading to the name 'Snakehead'. The mouth has a large gape and is fully toothed.
- Sub-cylindrical body with homocercal rounded caudal fin.
- Soft dorsal and anal rays form long dorsal and ventral fins leading from mid-body to caudal tail.

Size: Adult: 60-80 cm

Habitat and behaviour:

- Can be found in marine, freshwater and brackish environments and is termed a benthopelagic species. Adults inhabit ponds, streams and rivers but are thought to prefer stagnant or slow flowing waters. Will burrow into mud at the bottom of lakes during dry seasons ensuring skin and air-breathing apparatus remain moist to survive.

Diet: Predaceous, feeding on fish, frogs, snakes, insects, earthworms, tadpoles and crustaceans.

Barbonymus gonionotus

Common Name: Java or Silver Barb

Malay Name: Lampan Jawa



Description:

- Silvery white in colour, sometimes appearing golden on dorsal surface, dorsal and caudal fins appear greying- yellow with pelvic, pectoral and anal fins tinged lightly orange.
- Elevated back with strong dorsal arching. A slight concave indentation above the operculum, which can be used to identify this species when compared with *C. repasson*. Although similar in appearance, the indentation is more prominent in *C. repasson*.
- Strongly compressed body with homocercal forked caudal fin.
- Small head with a terminally positioned mouth. Maxillary barbels are very small or at times rudimentary.

Size: Adult: 15-25 cm

Habitat and behaviour:

- A benthopelagic species, occurring in rivers, tributaries and lakes. Increased abundances can be found in standing water habitats such as areas of flooded forest where they feed and spawn during wetter months and increased rainfall.

Diet: Primarily herbivorous, although will opportunistically eat invertebrates and smaller fish.

Cyclocheilichthys repasson

Common Name: Java Barb

Malay Name: Lampan Jawa



Description:

- Silvery white colour with scales appearing more translucent in comparison to the similar *B. gonionotus* species.
- Elevated back with strong dorsal arching. A large concave indentation above the operculum, which can be used to identify this species when compared with *B. gonionotus*.
- Strongly compressed body with homocercal forked caudal fin.
- Black blotch at the base of caudal tail, although not always distinct.
- Two pairs of small or rudimentary mandibular barbels.

Size: Adult: 10-20 cm

Habitat and behaviour:

- A benthopelagic species, primarily riverine but moving into slower moving water bodies and flooded forests during wetter months with increased rainfall. Favours areas with submerged roots and branches to graze on the rich biofilm.

Diet: Chiefly predatory feeding on insects, molluscs as well as algae and vegetation.

Dangila sabana

Common Name: None

Malay Name: Lampan Jawa



Description:

- Silvery white colour, with a reflected rainbow affect appearing on the sides when out of water.
- Dorsal fin extends from dorsal arch almost reaching base of caudal fin, this is very similar to *O. ingeri*.
- Fusiform body with homocercal forked caudal fin.
- Lateral line is distinct, with some individuals displaying longitudinal dark stripes below lateral line.
- Two pairs of maxillary barbels can be used to identify this species in comparison to *O. ingeri* which has one small or rudimental pair of maxillary barbels.

Size: Adult: 10-25 cm

Habitat and behaviour:

- A pelagic species, inhabiting rivers, tributaries and lakes. Prefers slower flowing habitats as well as areas with rich riparian overhang.

Diet: Primarily herbivorous, although will opportunistically eat invertebrates and smaller fish.

Leptobarbus hoevenii

Common Name: Mad Barb

Malay Name: Sultan



Description:

- Silvery grey in colour with clearly defined scales.
- Head shows no darkened scale pattern, the snout is protruded with a terminally positioned mouth. No barbels present.
- Fusiform body shape with homocercal forked caudal fin.
- Bright red pelvic, anal and caudal fin colouration.
- Juveniles often possess a black longitudinal stripe along the body, may still be a dull stripe present in adult individuals.

Size: Adult: 20-30 cm

Habitat and behaviour:

- Pelagic species found in free flowing rivers and tributaries, although will participate in migrations into flooded forest areas during the wet season. Usually found in shoals. Introduced into Borneo through aquaculture, often out competing local species.

Diet: Known to eat parenchyma and seeds from various tree species as well as feeding opportunistically on smaller fish and invertebrates.

Luciosoma pellegrini

Common Name: None

Malay Name: Popta



Description:

- Yellowy brown colouration with distinct markings. A clearing black line runs longitudinally from beneath the eye to the base of the tail, black spots can be seen toward the ventral side running parallel to the black line, usually numbering no more than 6 or 7.
- Dorsal fin is set close to the caudal tail in a position resembling a second dorsal fin.
- Fusiform body shape with homocercal forked caudal fin.
- Elongated pelvic fins, measuring up to 5cm.

Size: Adult: 5- 15 cm

Habitat and behaviour:

- Pelagic species occurring toward the surface of slow flowing water bodies. Prefers deeper waters such as lakes and participates in migrations into flooded forest during wetter months.

Diet: Predominantly feeds on vegetation, however will eat invertebrates.

Nematabramis everetti

Common Name: None

Malay Name: Lallang or Gepeng



Description:

- Silver ventral colour with a darker yellow colour dorsally, the change is clearly separated by the distinct lateral line.
- Dorsal fin is set close to the caudal tail in a position resembling a second dorsal fin. The first spine of each pectoral fin is elongated with the remaining spines being much smaller.
- Fusiform body shape with homocercal forked caudal fin.
- Small head with a superiorly positioned mouth. Maxillary barbels are long, measuring as much as 6 cm.
- Body trunk is clearly keeled in shape.

Size: Adult: 10-15 cm

Habitat and behaviour:

- Pelagic species favouring deeper waters. Prefers lakes and flooded areas of forest. Juveniles often found in faster flowing waters such as tributaries and rivers.

Diet: Primarily herbivorous, although will opportunistically eat invertebrates and smaller fish.

Osteochilus ingeri

Common Name: None

Malay Name: Lontong



Description:

- Silvery white ventral colour, with a dark grey shading dorsally.
- Dorsal fin extends from dorsal arch almost reaching base of caudal fin, this is very similar to *D. sabana*.
- Fusiform body with homocercal forked caudal fin.
- Large eyes and terminally positioned mouth.
- One pair of small or rudimentary maxillary barbels can be used to identify this species in comparison to *D. sabana* which has two pairs of larger maxillary barbels.

Size: Adult: 10-25 cm

Habitat and behaviour:

- A benthopelagic species, inhabiting rivers, tributaries and lakes. Prefers slower flowing habitats as well as areas with rich riparian overhang.

Diet: Primarily herbivorous, although will opportunistically eat invertebrates and smaller fish.

Puntius orphoides

Common Name: Javaen Barb

Malay Name: Lampan Jawa



Description:

- Silvery white in colour, with golden tint on dorsal surface.
- Elevated back with strong dorsal arching. A slight concave indentation above the operculum, similar to the Cyprinidae species *C. repasson* and *B. gonionotus*.
- Can be identified by the pelvic, anal and caudal fin colouration of orange red. Usually only the ventral lobe of the caudal fin shows orange red colouration, with the upper lobe and dorsal fin being dark grey in colour.
- Strongly compressed body with homocercal forked caudal fin.
- Small head with a terminally positioned mouth.
- Elongated black marking from upper end of gill opening to the base of pectoral gill.

Size: Adult: 15-25 cm

Habitat and behaviour:

- A benthopelagic species, preferring fast flowing habitats such as rivers and tributaries. Like many species it migrates into flooded forest areas during wetter months to feed and spawn.

Diet: Omnivorous, feeding on algae, organic detritus and invertebrates.

Rasbora tornieri

Common Name: Yellowtail rasbora

Malay Name: Seluang



Description:

- Ventrall colour silvery white, with a yellowish golden dorsal surface. A dark stripe runs longitudinally from the operculum to base of caudal fin.
- Bright yellow caudal fin colour, with dorsal, pectoral, pelvic and anal fins more transparent.
- Fusiform body shape with homocercal forked caudal fin.
- Small head with a terminally positioned mouth.
- Body trunk is clearly keeled in shape.

Size: Adult: 5-15 cm

Habitat and behaviour:

- A benthopelagic species, occurring in rivers, tributaries and lakes. Prefers slower flowing waters, usually staying closer to the surface due to its predation on insects. Breeding takes place during wetter months with individuals spawning in flooded forests.

Diet: Chiefly predatory, feeding on insects on the water surface. Will also eat other invertebrates.

Oxyeleotris marmorata

Common Name: Marble Goby

Malay Name: Betutu



Description:

- Dark and light brown camouflaged pattern, with a lighter ventral side.
- Two large dorsal fins positioned well back on the body. Both dorsal and anal fins possess primary spines.
- One of the largest goby species in the world, with a large head and a superior mouth position.
- Fusiform body with homocercal rounded caudal fin.
- Large eyes ventrally positioned with flattened underside of the body shows typical morphology of benthic species.

Size: Adult: 30-60 cm

Habitat and behaviour:

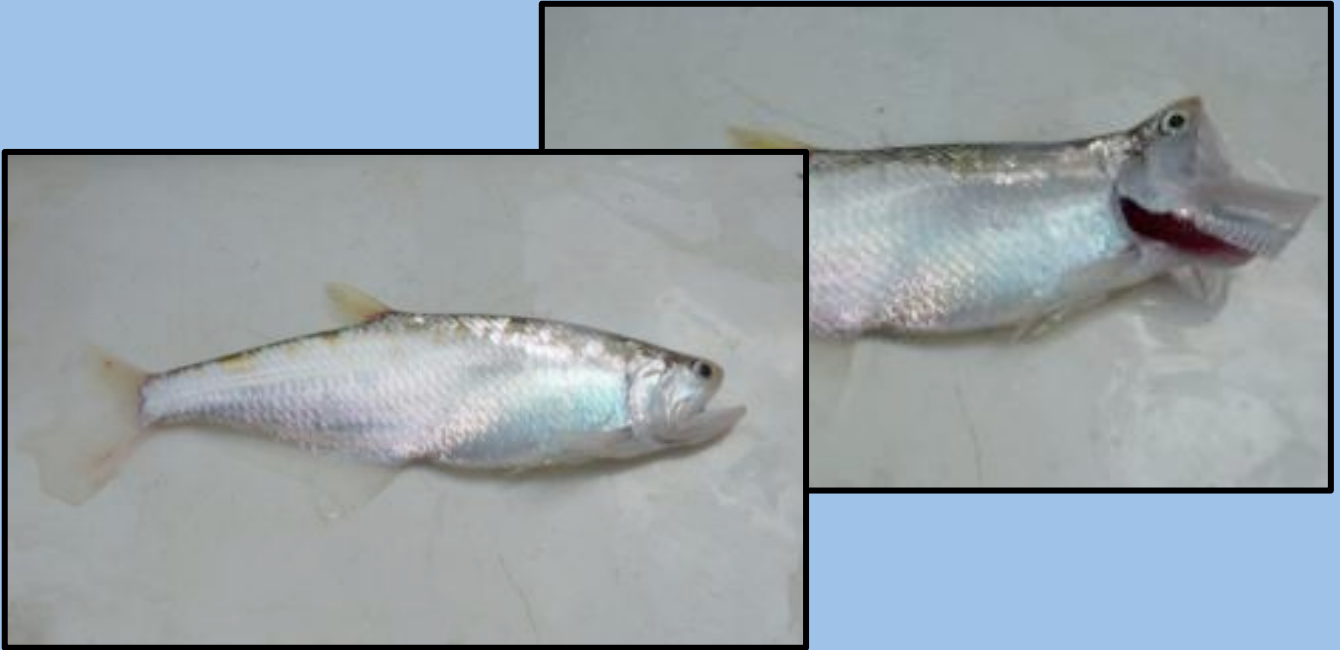
- A benthic species, inhabiting rivers, tributaries and lakes. Prefers slower flowing habitats as well as areas with rich riparian overhang due to increased prey. A nocturnal ambush predator that uses lie in wait tactics. Generally motionless diurnally unless striking out for food.

Diet: Predaceous, feeding on small fish, shrimp, aquatic insects, mollusks and crustaceans.

Setipinna melanochir

Common Name: Dusky-hairfin anchovy

Malay Name: Puput



Description:

- Silvery white in colour, with dark band running along dorsal edge. Yellow markings speckled along dorsal surface matched by small yellow dorsal fin.
- Transparent pectoral, pelvic, anal and caudal fins. Anal fin is elongated from central point to caudal tail.
- Strongly compressed fusiform body with homocercal forked caudal fin.
- Small snout with mouth in superior position. Mouth has wide gape.
- Small black marking from upper end of gill opening to the base of pectoral gill.

Size: Adult: 15-25 cm

Habitat and behaviour:

- Primarily a marine species found in neritic waters, although also found in freshwater habitats. Not known whether populations found in freshwater are migrants or permanent. A pelagic species which prefers fast flowing habitats such as rivers and tributaries.

Diet: Predaceous, feeding on insects, larvae and small fish.

Pterogoplichthys pardalis

Common Name: Amazon Sailfin Catfish

Malay Name: Ikan Harimau



Description:

- Body is armoured with a particularly hardened head. A black and light brown camouflage pattern covers the body with a lighter ventral surface.
- Large elongated dorsal fin with thick spines running along the length. Pectoral, pelvic, anal and caudal fins all possess thick spines, however none are venomous.
- Fusiform body with homocercal emarginated caudal fin.
- Can be identified by the number of rays in the dorsal fin. More than 10 indicates that it's a *P. pardalis*, most other plecos have 8 or fewer rays.
- Eyes are set back within armour for protection. Mouth is positioned in an inferior position.

Size: Adult: 30-60 cm

Habitat and behaviour:

- An invasive species, commonly found in the Amazon. Lives a benthic lifestyle, inhabiting rivers, tributaries and lakes. Prefers slower flowing habitats and can be found burrowing into banks. A facultative air breather, with the ability to survive out of water for long periods.

Diet: Omnivorous, feeding on algae, plants and invertebrates such as mollusks.

Megalops cyprinoides

Common Name: Indo-Pacific Tarpon

Malay Name: Bulan



Description:

- Silver colour, with darker blue-green band running along dorsal edge.
- The last ray of the dorsal fin is extended, almost reaching the caudal tail. Both dorsal and caudal fins are dark in colour, with pectoral, pelvic and anal fins being lighter in colour.
- Compressed fusiform body with homocercal forked caudal fin.
- The lower jaw contains a bony plate extending past the upper jaw.
- Large eyes with shortened snout, mouth is positioned in superior position and body displays a keeled trunk.

Size: Adult: 10-30 cm

Habitat and behaviour:

- A benthopelagic species, juveniles are more commonly found in freshwater habitats preferring slow flowing tributaries and lakes. Adults are generally found offshore where spawning takes place. Can tolerate oxygen-poor water owing to the ability to draw air into the lung bladder.

Diet: Predaceous, feeding on small fish and invertebrates.

Pangasius hypophthalmus

Common Name: Striped Catfish

Malay Name: Patin



Description:

- White ventrally with a dark grey blue dorsal colour and no scales. Dark dorsal and caudal fins with red colouration to anal and pelvic fins.
- Primary spine of dorsal fin hardened for protection.
- Fusiform body laterally flattened with homocercal forked caudal fin.
- Small eyes with shortened snout, mouth is positioned terminally. Mouth is broad with small sharp teeth.
- Anal fin is elongated and a small secondary dorsal fin is present.

Size: Adult: 10-20 cm

Habitat and behaviour:

- A benthopelagic species, inhabiting rivers, tributaries and lakes, preferring faster flowing habitats. A highly migratory species that makes long distance migrations reaching up to hundreds of kilometers. Travels between upstream refuges to downstream spawning habitats.

Diet: Omnivorous, feeding on algae, plankton, aquatic insects, plant material, crustaceans and small fish.

Kryptopterus kryptopterus

Common Name: Glass Catfish

Malay Name: Lais



Description:

- Light pink ventral surface and golden brown dorsally, particularly behind the head.
- No dorsal fin present, anal fin extends from below pectoral fin to base of caudal tail. Pectoral fins have hardened primary spine for protection. Both pectoral and anal fins are usually translucent.
- Fusiform body with homocercal forked caudal fin.
- One pair of maxillary barbels which can reach up to 8cm in length and a smaller pair of mandibular barbels. The barbels can be used to identify this species, as it can be confused with *K. parvanalis*, which possesses two pairs of small or rudimentary barbels.
- Broad head with large eyes positioned slightly ventrally. Flattened underside of the head and a terminally positioned mouth.

Size: Adult: 10-20 cm

Habitat and behaviour:

- A benthopelagic species, preferring fast flowing habitats such as rivers and tributaries where it will form schools. A common food fish in local communities.

Diet: Predatory, feeding crustaceans, invertebrates and smaller fish.

Kryptopterus parvanalis

Common Name: None

Malay Name: Limpatah



Description:

- Metallic silver in colour, with a light pink shade to the ventral side of the head and a green colour running dorsally.
- No dorsal fin present, anal fin extends from below pectoral fin to base of caudal tail. Pectoral fins have hardened primary spine for protection.
- Fusiform body with homocercal forked caudal fin.
- One pair of maxillary barbels reaching the end of the preopercule and a pair of mandibular barbels which are small or rudimentary. The barbels can be used to identify this species, as it can be confused with *K. cryptopterus*, which possesses two pairs of larger barbels.
- Broad head with large eyes positioned slightly ventrally. Flattened underside of the head and a terminally positioned mouth.

Size: Adult: 15-30 cm

Habitat and behaviour:

- A benthopelagic species, preferring fast flowing habitats such as rivers and tributaries where it will form schools. A common food fish in local communities.

Diet: Predatory, feeding on small fish, shrimp, aquatic insects, mollusks and crustaceans.

Wallago maculatus

Common Name: None

Malay Name: Tapah or Tapoh



Description:

- Pale brown colour, with a light pink shade ventrally. It can be distinguished from other *Wallago* species in having a paler body with a series of distinct dark blotches on the sides of the body below the lateral line.
- No dorsal fin present, anal fin extends from below pectoral fin to base of caudal tail.
- Fusiform body with homocercal forked caudal fin.
- One pair of maxillary barbels reaching past the pectoral fins, can measure up to 8 cm in length.
- Broad head with large eyes positioned slightly ventrally. Flattened underside of the head and a terminally positioned mouth.

Size: Adult: 15-30 cm

Habitat and behaviour:

- A benthopelagic species, preferring fast flowing habitats and is predominantly found in rivers. It is a solitary predator.

Diet: Predatory, feeding on small fish, shrimp, aquatic insects, mollusks and crustaceans.

Toxotes chatareus

Common Name: Seven-spot Archer Fish

Malay Name: Sumpit



Description:

- Predominantly silvery or gold in colour and dark brown dorsally. Dark brown blotches running laterally along the body, usually numbering 6-7. The dark blotches alternate between long and short.
- Dorsal and anal fins positioned well back on the body and both display dark brown colouring.
- Strongly compressed body with homocercal truncated caudal fin.
- Large eyes dorsally positioned to assist in predation of terrestrial insects.

Size: Adult: 20-30 cm

Habitat and behaviour:

- A pelagic species, occurring mainly in brackish mangrove areas but will also penetrate freshwater rivers, tributaries and lakes. Prefers slower flowing habitats as well as areas with rich riparian overhang due to method of predation, which involves spitting water droplets at terrestrial insects positioned on overhanging vegetation. A diurnal predator that has a maximum shooting range of 150cm.

Diet: Predatory, feeding on terrestrial insects, small fish, prawns and insect larvae.