

CHAPTER 15

Field Identification of Needlefishes From Indian Waters



Family Belonidae Bonaparte 1832

Needlefishes

The family Belonidae is comprised of 34 valid species under 10 genera, all over the world (Collette, 2003). Eight of the ten genera are monotypic or contain only two or three species. Highest numbers of species of the family are found in two genera, *Tylosurus* and *Strongylura* with 6 and 14 species, respectively while five species are polytypic containing a total of 17 subspecies. In India 8 valid species of needle fish under 4 genera were reported namely *Ablennes hians* (Valenciennes, 1846), *Platybelone argalus platyura* (Bennett, 1832), *Tylosurus crocodilus* (Péron & Lesueur, 1821), *T. acus melanotus* (Bleeker, 1850), *Strongylura strongylura* (van Hasselt, 1823), *S. leiura* (Bleeker, 1850), *S. incisa* (Valenciennes, 1846) and *Xenentodon cancila* (Hamilton, 1822).

Diagnostic characters (see Fig.1): The needlefishes are relatively small family of beloniform fishes characterised by the following characters (Collette, 2003): Small to medium-sized (up to 2 m) fishes with elongate bodies. Head with both upper and the lower jaws extended into a long beaks filled with sharp teeth, third pair of upper pharyngeal bones are separated, finlets are absent behind dorsal and anal fins, nostrils lie in a pit anterior to the eyes, fins without spine, dorsal fin with 11–43 rays, anal fin with 12–39 rays, both dorsal and anal fins posterior in position, pelvic fins with 6 soft rays and abdominal in position, pectoral fins are short with 5–15 rays, lateral line runs down from the pectoral fin origin and then along the ventral margin of the body, scales are small (cycloid) and easily detached, precaudal vertebrae number 33–65, caudal vertebrae 19–41, and total vertebrae 52–97.

Colour: Body green or blue color on the back and silvery white on belly and lower sides, a dusky or dark blue stripe may be present along the sides of the body, green color of bones. The fleshy tip of the lower jaw is usually red or orange color in fresh.

Habitat, biology, and fisheries: Majority of the needlefish species found in marine waters but 12 species are found purely in fresh water. Many species of *Strongylura* are reported to move long distance into freshwater regions. Being a pelagic group, needlefishes are found at the

surface of the water. Needlefishes are carnivorous in nature, mostly preying upon small pelagic fishes captured by their beaks in a sideways fashion. These fishes are one of the commercially important pelagic fishery resources, exploited globally due to its excellent flavour, mostly captured by casting or trolling surface or near-surface lures and in floating gill nets, marketed in fresh, frozen, and smoked condition (Collette, 2003). In India, these species are exploited all along the coastline including Lakshadweep and, Andaman and Nicobar Islands, mainly by hook and line, gill net, and trawl, and considered as one of the commercially important pelagic fishery resources throughout its ranges.

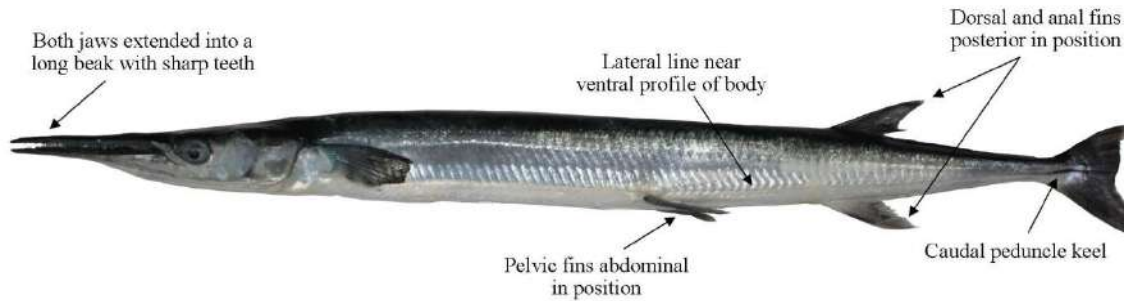


Fig. 1 General features of a typical needlefish species

Key to the species of needlefish occurring in the area

Adapted from Collette (1984, 1999), Roul *et al.* (2019a, 2019b) and the observation made during the present studies.

1a. Body strongly compressed laterally and marked with a series of vertical bars; anal-fin rays 24 to 28..... *Ablennes hians* (Valenciennes, 1846).

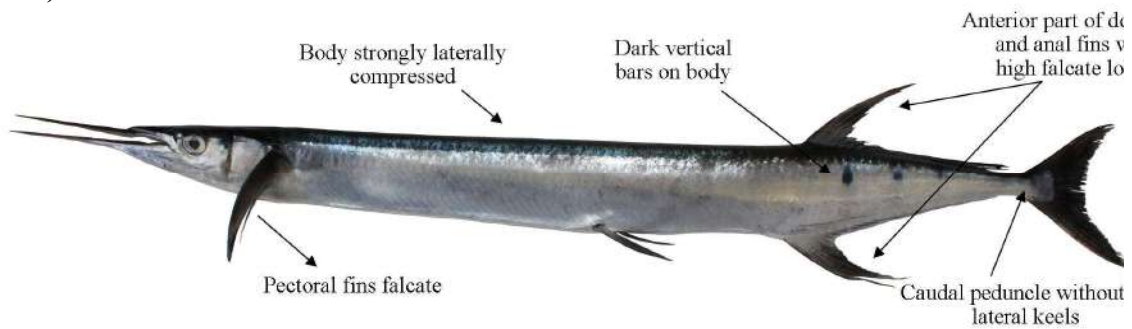


Fig. 2 Flat needlefish *Ablennes hians* (Valenciennes, 1846)

1b. Body rounded or squarish in cross-section; no vertical bars present; anal-fin rays 13 to 23 (rarely 24)..... **2.**

2a. Caudal fin forked, lower and upper lobes of equal length; caudal peduncle strongly depressed (flattened dorsoventrally) with well-developed lateral keels, least depth of caudal peduncle about 1/2 the width; gill rakers present..... *Platybelone argalus platyura* (Bennett, 1832).

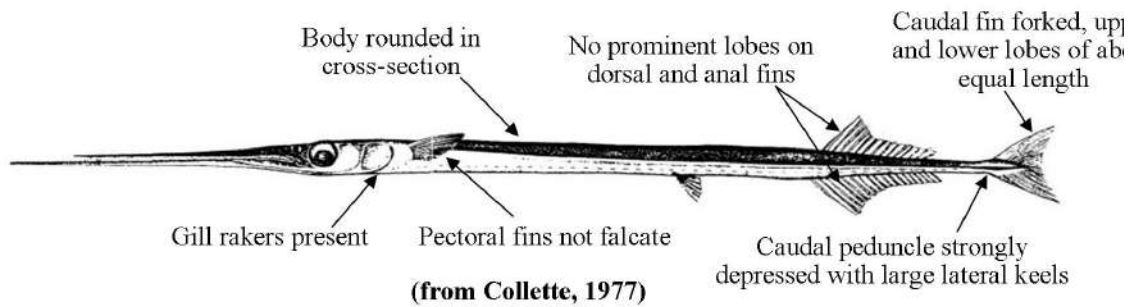


Fig. 3 Keeled needlefish *Platybelone argalus platyura* (Bennett 1832)

2b. Caudal fin forked or emarginated or rounded or truncated; caudal peduncle not strongly depressed, a small lateral keel on caudal peduncle or no keel at all, caudal peduncle deeper than wide; gill rakers absent

3.

3a. Caudal fin distinctly forked, with lower lobe longer than upper lobe; narrow raised dark lateral keel on each side of caudal peduncle; juveniles with an expanded black lobe in the posterior part of the dorsal fin; dorsal-fin rays 19 to 27..... ***Tylosurus Cocco* 1833**

4.

3b. Caudal fin emarginated, rounded or truncated; no keels on caudal peduncle; no posterior black dorsal-fin lobe at any size; dorsal-fin rays 12 to 21.....

5.

4a. Dorsal-fin rays 24 to 27; anal-fin rays 22 to 24; conspicuous appendage present at tip of lower jaw in some specimens; air bladder with numerous air bubble; posterior part of anal fin rays usually blackish; lower part of upper lobe of caudal fin without elevation.....***Tylosurus acus melanotus* (Bleeker, 1850).**

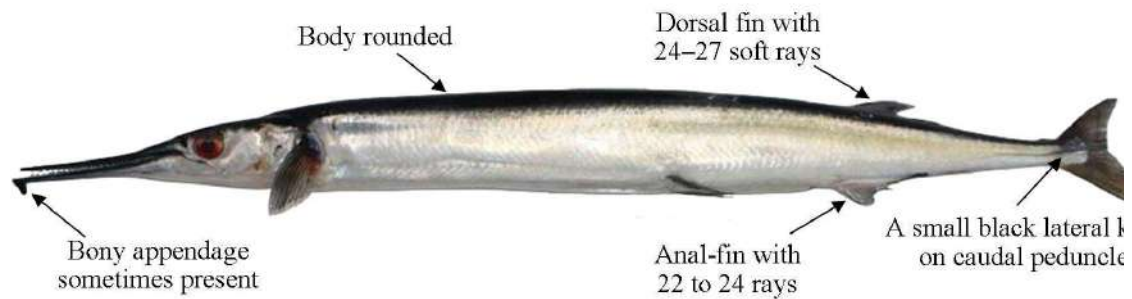


Fig. 4 Keel-jawed needle fish *Tylosurus acus melanotus* (Bleeker, 1850)

4b. Dorsal-fin rays 21 to 25 (usually 22 or 23); anal fin rays 19 to 22; conspicuous appendage absent at tip of lower jaw in all specimen; air bladder without air bubble; posterior part of anal fin rays usually transparent; lower part of upper lobe of caudal fin with an prominent elevation in adult but absent in juveniles..... ***Tylosurus crocodilus* (Péron & Lesueur, 1821).**

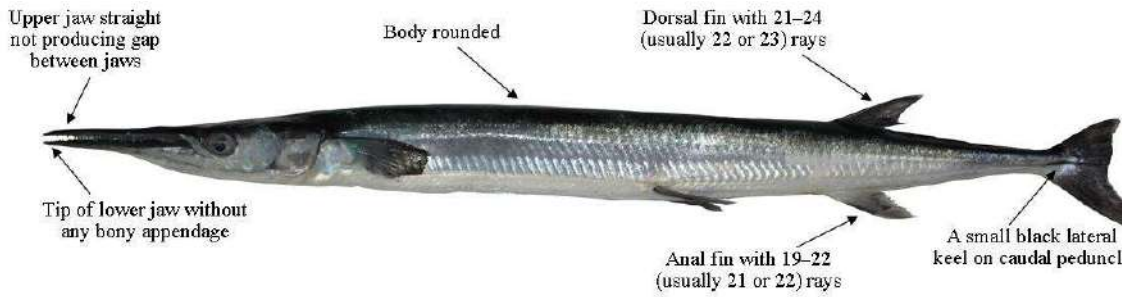


Fig. 5 Hound needlefish *Tylosurus crocodilus* (Péron & Lesueur, 1821)

5a. Dorsal and anal fin rays nearly opposite to each other; one pair of dentigerous upper pharyngeal..... *Xenentodon cancila* (Hamilton, 1822).

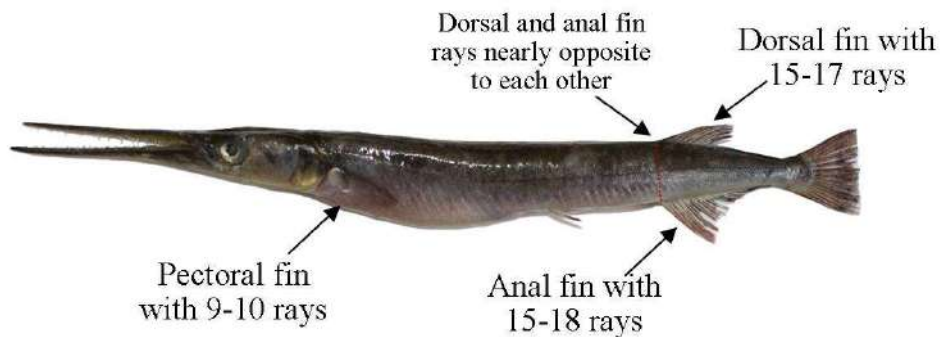


Fig. 6 Freshwater garfish *Xenentodon cancila* (Hamilton, 1822)

5b. Dorsal fin inserted behind anal fin origin; two or three pairs of dentigerous upper pharyngeal..... *Strongylura van Hasselt* 18246.

6a. Dorsal-fin rays 12 to 15; anal-fin rays 15 to 18; bases of dorsal and anal fins covered with scales, prominent black spot at base of caudal fin; caudal fin rounded or truncate; gonad bilobed *Strongylura strongylura* (van Hasselt, 1823).

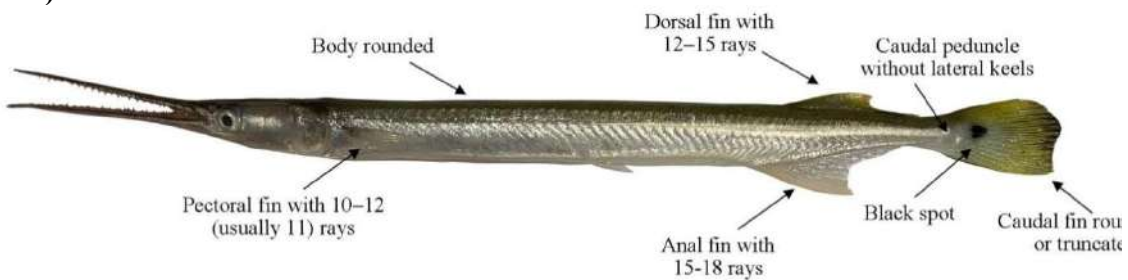


Fig. 7 Spottail needlefish *Strongylura strongylura* (van Hasselt, 1823)

6b. Dorsal-fin rays 17 to 21; anal-fin rays 21 to 27; bases of dorsal and anal fins without scales; caudal fin emarginated without black spot; gonad either single lobed or bilobed..... 7.

7a. Predorsal scales 100 to 125; dorsal-fin origin over anal-fin rays 4 to 6; prominent elongate spot on cheek between opercle and preopercle; pectoral fin with a yellowish tinge basally; dorsal and anal fin with yellowish rays with blackish tinge at the central region; caudal with yellowish tinge basally and greyish towards margin; gonad

bilobed..... *Strongylura incisa* (Valenciennes, 1846).

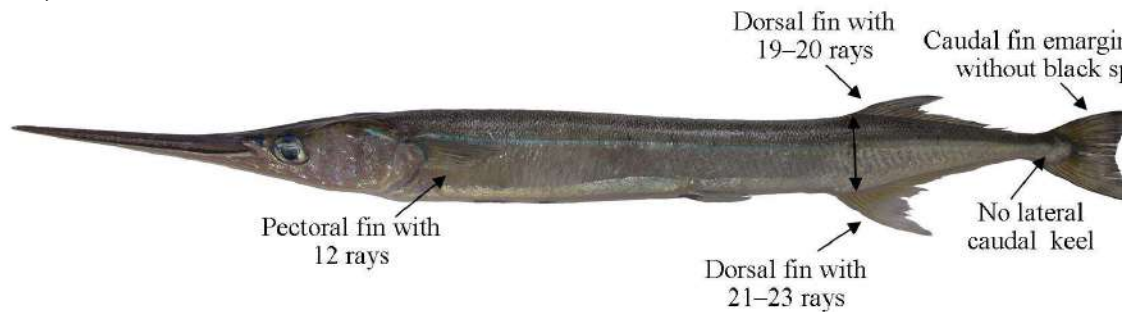


Fig. 8 Reef needlefish *Strongylura incisa* (Valenciennes, 1846)

7b. Predorsal scales 130 to 180; dorsal-fin origin over anal-fin rays 7 to 10; black bar on cheek between opercle and preopercle, and anterior part of the body; pectoral fins with a distal dark spot, tip of fins yellow in fresh specimens; tip of dorsal and anal-fin lobes yellowish, caudal fin dark with a yellowish tinge on upper lobe; gonad single lobed..... *Strongylura leiura* (Bleeker, 1850).



Fig. 9 Banded needlefish *Strongylura leiura* (Bleeker, 1850)

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