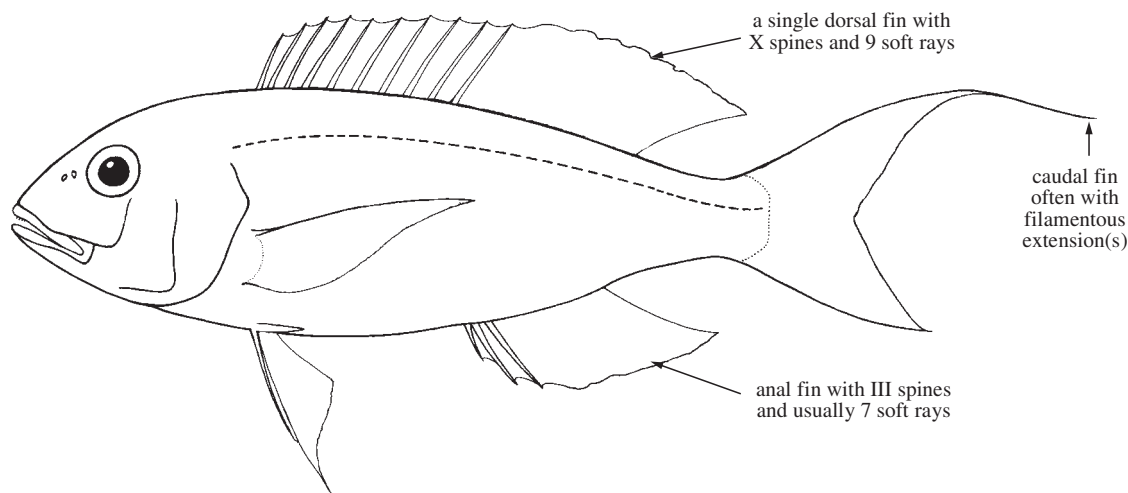


## NEMIPTERIDAE

## Threadfin breams (also whiptail breams, monocle breams, dwarf monocle breams, and coral breams)

by B.C. Russell

**Diagnostic characters:** Elongate to moderately deep, compressed, small to medium-sized (to about 35 cm) sparoid fishes. Mouth terminal, small to moderate; premaxillaries moderately protrusible; teeth in jaws conical, enlarged canines present anteriorly in *Nemipterus* and *Pentapodus*; vomer and palatine without teeth. **A single continuous dorsal fin, with X spines and 9 soft rays; anal fin with III spines and 7 (except *Nemipterus virgatus* with 8) soft rays;** caudal fin emarginate, forked, lunate or falcate; the upper and/or lower tips of the fin with or without pointed or filamentous extensions; pectoral fins with 2 unbranched and 12 to 17 branched rays; pelvic fins thoracic, with I spine and 5 soft rays. Scales finely ctenoid and moderate in size. Ascending premaxillary process never as long as the alveolar ramus; articular process not fused to ascending process along anterior margin; postmaxillary process present, low, broad-based; palato-premaxillary ligament well developed; ethmo-maxillary ligament well developed, Y-shaped, with a ventrolateral branch inserting on the palatine anterior to the insertion of the palato-premaxillary ligament. Gill membranes free from the isthmus; gill arches 4, a slit behind the fourth; pseudo-branch well developed; gill rakers short, knob-like; 6 branchiostegal rays, the first 5 inserting on the ceratohyal, the sixth inserting at the interspace between the ceratohyal and the epihyal; second and third epibranchial tooth plates lacking. **First and second infraorbitals deep; the third infraorbital never deep, and the second infraorbital typically projecting backward below it (this posterior projection developed as an externally visible spine in *Scolopsis*);** third infraorbital with a well-developed subocular shelf; fourth infraorbital often with a very small shelf. Two predorsal bones present in the following configuration: first predorsal, first neural spine, second predorsal, second neural spine, first pterygiophore supporting the first 2 dorsal-fin spines plus the second pterygiophore supporting the third dorsal-fin spine, third neural spine, third pterygiophore supporting the fourth dorsal-fin spine, fourth neural spine; the last pterygiophore of the dorsal and anal fins trisegmental. Epipleural ribs 8 to 12; accessory subpelvic keel and post pelvic process present; opisthotic well developed. **Colour:** extremely variable, but often pinkish or reddish with red, yellow, or blue markings.



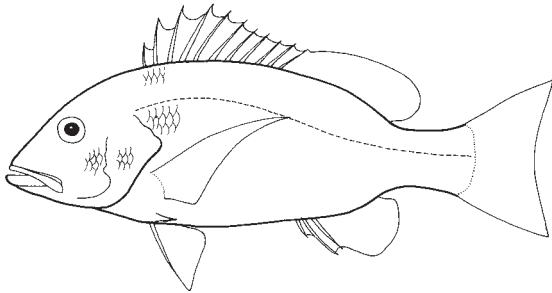
**Habitat, biology, and fisheries:** Marine, bottom-living fishes. Species of the genus *Nemipterus* occur on mud and sand bottoms in coastal inshore as well as offshore shelf waters and range in depths to about 300 m, although most species occur in much shallower water. Species of the genus *Parascolopsis* occur on mud or sand bottoms mainly in offshore shelf waters in depths to about 400 m. Species of the genus *Pentapodus* are benthic or free-swimming near the bottom, and usually occur on or close to coral reefs in depths to 100 m. The monotypic *Scaevius milii* occurs on reef and shallow muddy or sand bottoms in inshore areas. Species of the genus *Scolopsis* occur usually on coral reefs, or on sand or mud bottoms close to reefs, in depths to about 60 m. Nemipterids can be solitary or schooling and do not appear to be territorial. Carnivorous and feed mainly on other small fishes, cephalopods, crustaceans, and polychaetes. Many nemipterids show size-related differences in sex ratios, with small fishes being mainly females and larger fishes males. In some species this size-related skew in sex ratios appears to be due to higher growth rates in males. However, some species of *Pentapodus*, *Scolopsis*, and *Nemipterus* appear to be protogynous hermaphrodites. Spawning seasonality varies widely among different species and appears to vary also

between localities. Mature ova are present in species of *Nemipterus* over a prolonged period, inferring a protracted spawning season, with usually 1 or 2 periods of increased fecundity. Threadfin breams, and to a much lesser extent monocle breams, are an important component of commercial and artisanal fisheries of the Indo-West Pacific region. Whiptail breams are of artisanal fisheries importance in some areas and are also taken occasionally by recreational fishermen. Dwarf monocle breams, because of their usually small size and deeper-water habits are of little fisheries interest. Caught mainly by bottom trawl or by handline. Other methods include longline, gill nets, lift nets, surrounding nets, drive-in nets, fish stakes, and traps. Some species of *Scolops is* also are captured live by hand net for the aquarium trade. Nemipterids are popular eating fishes and are marketed fresh, dry-salted, dry-smoked, fermented, and steamed. Trash fish are made into fish balls, fish cakes, fish meal and surimi, or used as animal feed. In many areas, species of *Nemipterus* are the second or third-most important catch species by weight. For 1995, the FAO Yearbook of Fishery Statistics reports a total catch of around 134 200 t of nemipterids from the Western Central Pacific. However, because of the largely artisanal nature of the fisheries of some areas and the paucity of landing statistics, the available figures probably grossly underestimate the actual catch of nemipterids taken in the area.

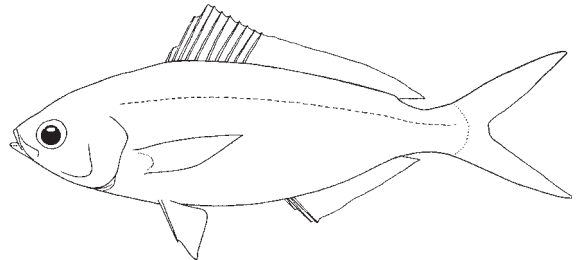
### Similar families occurring in the area

Lutjanidae: dorsal fin with X to XII spines and 10 to 17 soft rays; anal fin with III spines and 7 to 11 soft rays; teeth usually present on vomer and palatine.

Caesionidae: mouth small, protractile; dorsal fin with X to XV spines and 8 to 22 soft rays; anal fin with III spines and 9 to 13 soft rays.



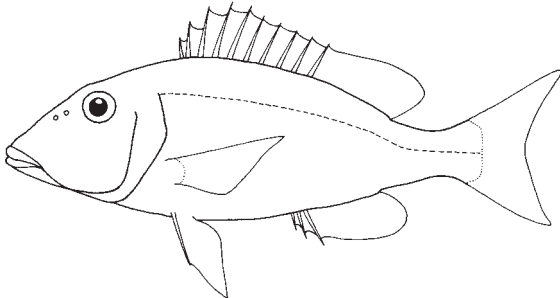
Lutjanidae



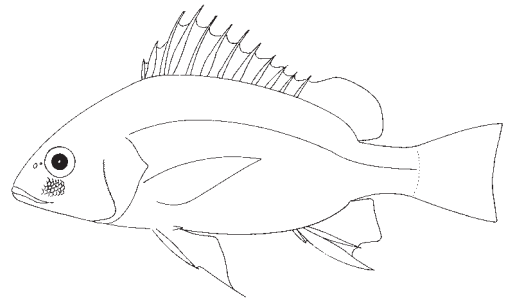
Caesionidae

Lethrinidae: anal fin with III spines and 8 to 10 soft rays; no cheek scales in *Lethrinus*.

Haemulidae: dorsal fin with IX to XIV spines and 11 to 26 soft rays; anal fin with III spines and 6 to 18 soft rays; scales present between eye and mouth; pores present on chin.



Lethrinidae



Haemulidae

**Key to the species of Nemipteridae occurring in the area**

- 1a. Suborbital naked, with a large backwardly pointing spine and a series of smaller spines or serrations on its posterior margin; posterior margin of preopercle coarsely denticulate or serrate (Fig. 1); canine teeth absent . . . . . (*Scolopsis*) → 2
- 1b. Suborbital scaly or naked, spine weak or absent; posterior margin of suborbital smooth, finely serrate, or with a few small denticulations; posterior margin of preopercle finely denticulate or smooth (Fig. 2); canine teeth in jaws absent, or present only anteriorly . . . . . (*Scaevius*, *Nemipterus*, *Pentapodus*, *Parascolopsis*) → 13
- 2a. Small forward pointing spine or bony ridge present below eye (not always well developed in juveniles) (Fig. 3a) . . . . . → 3
- 2b. Small forward pointing spine or bony ridge below eye absent (Fig. 3b). . . . . → 6

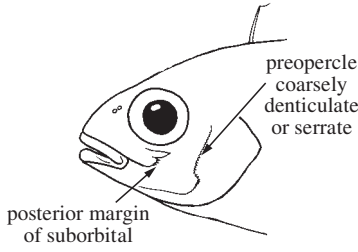


Fig. 1 *Scolopsis*

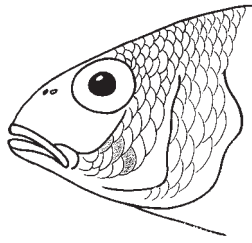


Fig. 2

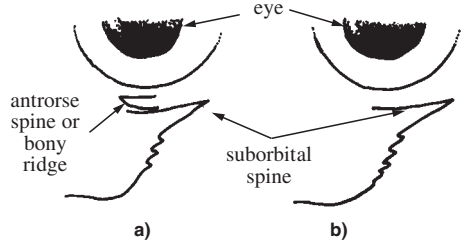


Fig. 3 suborbital bone

- 3a. Maxilla denticulate on its external edge (Fig. 4a) . . . . . *Scolopsis ciliatus*  
(Andaman Sea, West Pacific)
- 3b. Maxilla smooth along its external edge (Fig. 4b) . . . . . → 4
- 4a. Scales on top of head extending forward to between level of snout and anterior nostril (Fig. 5a) . . . . . → 5
- 4b. Scales on top of head not or only just extending forward to level of posterior nostril (Fig. 5b) . . . . . *Scolopsis xenochrous*  
(West Pacific and East Indian Ocean: Solomon Islands to Maldives)
- 5a. Pectoral fins reaching to level of anus; anterior part of anal fin black; body depth 2.5 to 3 times in standard length. . . . . *Scolopsis bilineatus*  
(West Pacific and East Indian Ocean; Fiji to Laccadive Islands)
- 5b. Pectoral fins not reaching to level of anus; anterior part of anal fin not black; body depth 2 to 2.6 times in standard length . . . . . *Scolopsis vosmeri*  
(Indo-West Pacific)
- 6a. Temporal region naked (Fig. 6) . . . . . *Scolopsis temporalis*  
(Solomon Islands, New Guinea, Sulawesi)
- 6b. Temporal region scaly . . . . . → 7

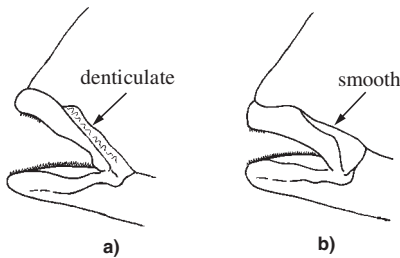


Fig. 4 outer surface of maxillary

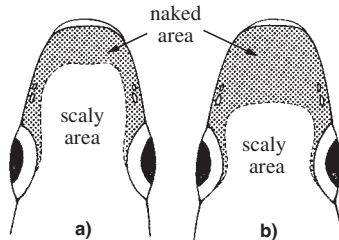


Fig. 5 top of head, showing forward extent of scales

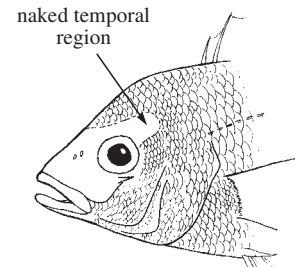


Fig. 6 extent of scales on head

- 7a. Head scales reaching forward only to level of midpupil (Fig. 7b) . . . . . *Scolopsis trilineatus*  
(West Pacific: Samoa to Philippines)
- 7b. Head scales reaching forward to or in front of level of anterior margin of eye (Fig. 7a) . . . . . → 8
- 8a. Lateral-line scales 37 to 39 . . . . . *Scolopsis margaritifer*  
(West Pacific)
- 8b. Lateral-line scales 42 to 48 . . . . . → 9
- 9a. Three scale rows between lateral line and dorsal-fin origin; colour pattern consisting of 3 irregular dark stripes horizontally on upper half of body; total pectoral-fin rays 16 . . . . . *Scolopsis lineatus*  
(West Pacific and Cocos-Keeling Islands)
- 9b. Four to 5 scale rows between lateral line and dorsal-fin origin; colour pattern not as above; total pectoral-fin rays 16 to 18 . . . . . → 10

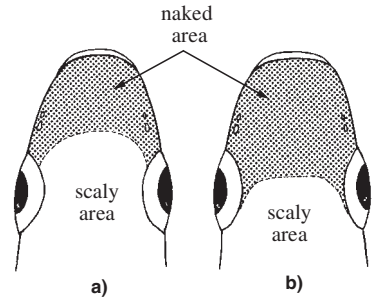


Fig. 7 top of head, showing forward extent of scales

- 10a. Head scales reaching forward to or nearly to level of posterior nostril . . . . . → 11
- 10b. Head scales not reaching forward to level of posterior nostril . . . . . → 12
- 11a. Bony opercular ridge naked or nearly so (Fig. 8a); lower limb of preopercle naked or nearly so; red spot at base of pectoral fins . . . . . *Scolopsis taeniopterus*  
(West Pacific: northern Australia to Philippines)
- 11b. Bony opercular ridge scaly (Fig. 8b); lower limb of preopercle with 1 or 2 rows of scales; no red spot at base of pectoral fins . . . . . *Scolopsis affinis*  
(West Pacific: northern Australia to Philippines)
- 12a. Four transverse scale rows between lateral line and first dorsal-fin spine; patch of scales on top of head truncated anteriorly (Fig. 9a) . . . . . *Scolopsis auratus*  
(southern Indonesia, Sri Lanka, Maldives)
- 12b. Five or 6 transverse scale rows between lateral line and first dorsal-fin spine; scales on top of head not truncated anteriorly (Fig. 9b) . . . . . *Scolopsis monogramma*  
(West Pacific and East Indian Ocean)
- 13a. Scales on top of head not reaching to level of eyes; temporal parts of head naked (Fig. 10) . . . . . *Scaevius milii*
- 13b. Scales on top of head reaching forward to or in front of middle of eyes; temporal parts of head scaly (Fig. 2) . . . . . (*Nemipterus, Pentapodus, Parasclopsis*) → 14

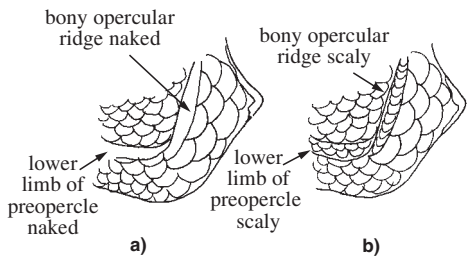


Fig. 8 scales on preopercle and opercle

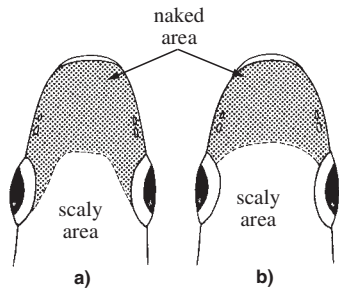


Fig. 9 shape of anterior margin of head scales

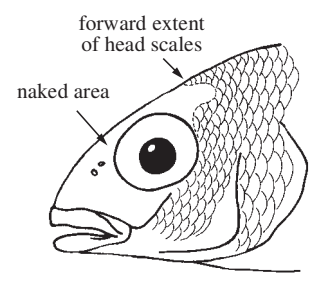


Fig. 10 *Scaevius milii*

14a. Suborbital spine weak or absent; 4 to 6 transverse scale rows on preopercle (Fig. 11) . . . . . (Pentapodus, Parasclopsis) → 38

14b. Suborbital spine absent; 3 transverse scale rows on preopercle (Fig. 12) . . . . . (Nemipterus) → 15

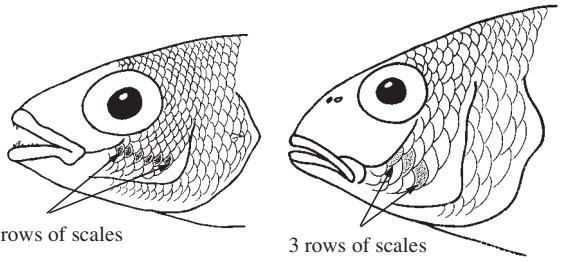


Fig. 11 Pentapodus

Fig. 12 Nemipterus

15a. Anal fin with III spines and 8 soft rays . . . . . Nemipterus virgatus (West Pacific)

15b. Anal fin with III spines and 7 soft rays . . . . . → 16

16a. First 2 dorsal-fin spines close together, almost fused, produced to form a very long filament (Fig. 13) . . . . . Nemipterus nematophorus (East Indian Ocean and West Pacific from South China Sea to Indonesia)

16b. First 2 dorsal-fin spines separated by a membrane, not produced into a long filament, and shorter than the following spines . . . . . → 17

17a. Membrane between dorsal-fin spines deeply incised (Fig. 14) . . . . . Nemipterus peronii (Indo-West Pacific)

17b. Membrane between dorsal-fin spines continuous or only slightly emarginate (Fig. 15) . . . . . → 18

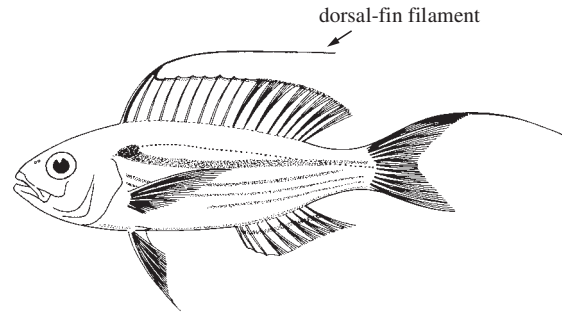


Fig. 13 Nemipterus nematophorus

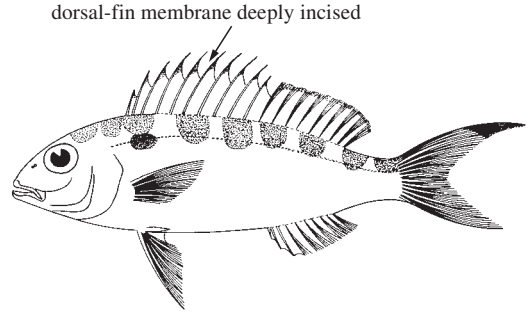


Fig. 14 Nemipterus peronii

18a. Upper lobe of caudal fin produced to an elongate point, falcate, or extended into a narrow filament (Fig. 16) . . . . . → 19

18b. Upper lobe of caudal fin pointed or rounded, not produced (Fig. 17) . . . . . → 28

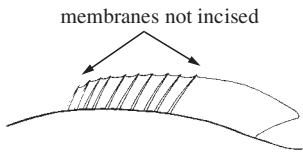


Fig. 15 dorsal fin

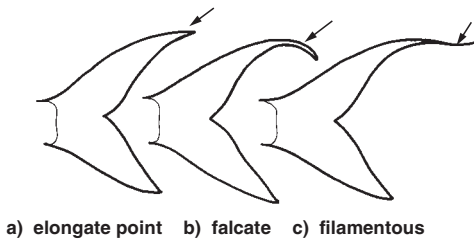


Fig. 16 shapes of upper caudal-fin lobe

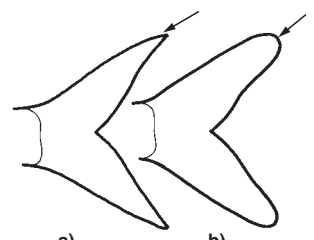


Fig. 17 shapes of upper caudal-fin lobe

19a. Upper lobe of caudal fin produced to an elongate point; dorsal fin elevated, first dorsal-fin spine long, 1.1 to 1.4 times in length of longest dorsal-fin spine . . . . . → 20

19b. Upper lobe of caudal fin falcate or extended into a short or long filament; dorsal fin not notably elevated, first dorsal-fin spine short, 1.3 to 2.9 times in length of longest spine . . . . . → 21

- 20a. Pelvic fins reaching to or beyond level of origin of anal fin; pectoral fins reaching to or just beyond level of anus, 1.1 to 1.3 times in head length; total gill rakers on first gill arch 11 to 13; 5 pale golden stripes on sides beneath the lateral line; anal fin with a narrow golden stripe just above its base, this stripe extending out to tip of the last soft ray . . . . . *Nemipterus* sp. 1  
(Indonesia)
- 20b. Pelvic fins reaching to or short of level of origin of anal fin; pectoral fins reaching to or just short of level of origin of anal fin, 0.9 to 1.1 times in head length; total gill rakers on first gill arch 13 to 16; 2 narrow golden stripes on sides beneath the lateral line; anal fin without stripes . . . . . *Nemipterus thosaporni*  
(West Pacific from southern Japan to Indonesia)
- 21a. Pectoral fins reaching to or beyond level of origin of anal fin; upper lobe of caudal fin with moderately long filament, about equal to head length . . . . . *Nemipterus japonicus*  
(Indo-West Pacific)
- 21b. Pectoral fins not reaching to level of origin of anal fin; upper lobe of caudal fin with short or long filament or falcate, ribbon-like extension . . . . . → 22
- 22a. Pelvic fins reaching to or beyond level of origin of anal fin, pectoral fins moderately long, reaching to beyond level of anus, but short of level of origin of anal fin; upper lobe of caudal fin with short filament . . . . . *Nemipterus marginatus*  
(West Pacific)
- 22b. Pelvic fins not reaching to level of origin of anal fin; pectoral fins short to very long; upper lobe of caudal fin with long filament or falcate, ribbon-like extension . . . . . → 23
- 23a. A line drawn upwards from posterior edge of the suborbital reaching the dorsal profile at or behind origin of dorsal fin; total gill rakers on first gill arch 14 to 20 . . . . . *Nemipterus aurifilum*  
(northeastern Australia)
- 23b. A line drawn upwards from posterior edge of the suborbital reaching the dorsal profile before origin of dorsal fin; total gill rakers on first gill arch 10 to 16 . . . . . → 24
- 24a. Body elongate, its depth 3.8 to 4.6 times in standard length . . . . . *Nemipterus zysron*  
(Indo-West Pacific)
- 24b. Body moderately deep, its depth 2.9 to 4 times in standard length . . . . . → 25
- 25a. Lower margin of eye on or below a line from tip of snout to upper base of pectoral fins . . . . . → 26
- 25b. Lower margin of eye on or above a line from tip of snout to upper base of pectoral fins . . . . . → 27
- 26a. Upper lobe of caudal fin falcate or ribbon-like, uniformly yellow; sides of body with 2 yellow stripes, the lower stripe originating behind base of pectoral fins; dorsal fin with undulating yellow lines . . . . . *Nemipterus bathybius*  
(West Pacific)
- 26b. Upper lobe of caudal fin filamentous, yellow with red lower margin; sides of body with 2 yellow stripes, the lower stripe originating above upper base of pectoral fins; dorsal fin without undulating yellow lines . . . . . *Nemipterus balinensis*
- 27a. Total pectoral-fin rays 16; pectoral and pelvic fins reaching to or just short of level of anus; sides of body with 2 yellow stripes; red spot between first 2 dorsal-fin spines . . . . . *Nemipterus nemurus*  
(West Pacific)
- 27b. Total pectoral-fin rays 16 to 18 (usually 17 or 18); pectoral and pelvic fins reaching to or beyond level of anus; sides of body with indistinct midlateral yellow stripe; red spot between first 2 dorsal-fin spines absent . . . . . *Nemipterus vitiensis*  
(Fiji, Vanuatu)

- 28a. Lower margin of eye below a line drawn from tip of snout to upper base of pectoral fins; suborbital narrow, 3.6 to 6.7 times in eye diameter; golden yellow spot, edged with red above and below, above upper base of pectoral fins . . . . . *Nemipterus balinensoides* (West Pacific)
- 28b. Lower margin of eye on or above a line drawn from tip of snout to upper base of pectoral fins; suborbital deeper, 0.9 to 2.8 times in eye diameter; no yellow spot above base of pectoral fins . . . . . → 29
- 29a. Scales below lateral line in ascending rows anteriorly (Fig. 18) . . . . . → 30
- 29b. Scales below lateral line in more or less horizontal rows anteriorly (Fig. 19) . . . . . → 32

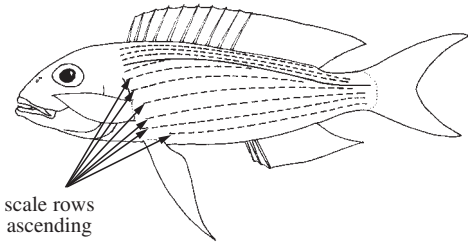


Fig. 18 longitudinal scale rows

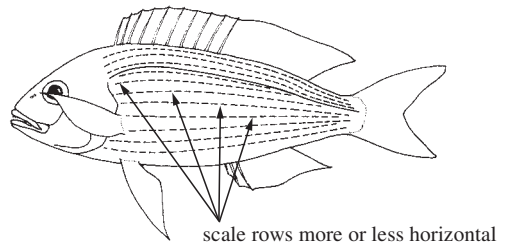


Fig. 19 longitudinal scale rows

- 30a. Upper lobe of caudal fin pointed, tip black (pigment retained in preserved specimens) . . . . . *Nemipterus theodorei* (eastern Australia)
- 30b. Upper lobe of caudal fin rounded or slightly rounded, tip pink or same colour as rest of fin . . . . . → 31
- 31a. Dorsal fin pale yellow, with a broad, bicoloured submedial stripe (yellow above, orange below), yellow margin and pale mauve submarginal stripe; anal fin with a single, pale lemon submedial stripe (sometimes broken) . . . . . *Nemipterus aurora* (West Pacific)
- 31b. Dorsal fin translucent pink, with 2 or 3 narrow yellow medial stripes, and reddish yellow margin; anal fin with 2 narrow pale yellow medial stripes . . . . . *Nemipterus celebicus* (Indonesia, northern Australia)
- 32a. Pectoral fins reaching to or short of level of anus . . . . . → 33
- 32b. Pectoral fins reaching to beyond level of anus . . . . . → 34
- 33a. Pelvic fins short, reaching to or short of anus; a line drawn upwards from posterior edge of the suborbital reaching the dorsal profile at about origin of dorsal fin; body pink, with darker saddles on back; caudal fin with lower margin white-edged; dorsal and anal fins without stripes . . . . . *Nemipterus furcosus* (East Indian Ocean to West Pacific)
- 33b. Pelvic fins very long, reaching to or beyond level of origin of anal fin; a line drawn upwards from posterior edge of the suborbital reaching the dorsal profile 2 or more scale rows before origin of dorsal fin; body pinkish; indistinct narrow, pale yellow stripes on sides, 2 above lateral line, 5 below; dorsal fin pale yellow, lacking stripes; anal fin with faint, broken yellow stripe near base which extends out on posterior rays to tip of fin . . . . . *Nemipterus gracilis* (southern Indonesia)

- 34a. Caudal fin forked or lunate, upper lobe falcate; last anal-fin ray elongate, notably longer than other rays; yellow teardrop-shaped bar beneath eye . . . . . *Nemipterus isacanthus*  
(West Pacific, from Philippines to northern Australia)
- 34b. Caudal fin forked, upper lobe pointed or rounded; last anal-fin ray not notably longer than other rays; yellow bar beneath eye absent . . . . . → 35
- 35a. Enlarged canines anteriorly in upper and lower jaws; red ovoid spot present below origin of lateral line; dorsal fin with narrow yellow stripe bordered on either side by translucent interspace that is edged by a narrow pale bluish white stripe, this stripe extending obliquely upwards to just above midposterior margin of fin; body deep, its depth 2.6 to 3.4 times in standard length . . . . . *Nemipterus hexodon*  
(West Pacific, from Andaman Sea to Solomon Islands)
- 35b. Enlarged canines anteriorly in upper jaw only; red spot below origin of lateral line absent; colour of dorsal fin not as above; body moderately elongate, its depth 3.1 to 4 times in standard length . . . . . → 36
- 36a. Pelvic fins very long, reaching to or beyond level of origin of anal fin . . . . . *Nemipterus nematopus*  
(West Pacific)
- 36b. Pelvic fins moderately long, not reaching to level of origin of anal fin . . . . . → 37
- 37a. Width of naked area of preopercle 1.4 to 1.7 times in width of scaly area; pectoral-fin length 1.1 to 1.5 times in head length; caudal fin pink, with upper tip same colour as rest of fin . . . . . *Nemipterus mesoprion*  
(Gulf of Thailand, Indonesia)
- 37b. Width of naked area of preopercle 1.8 to 2.4 times in width of scaly area; pectoral-fin length 1 to 1.1 times in head length; caudal fin pink, with upper tip sulphur yellow . . . . . *Nemipterus tambuloides*  
(West Pacific, from Andaman Sea to Indonesia)
- 38a. No canine teeth in jaws; second anal-fin spine usually longer and more robust than third spine (Fig. 20b); body depth 2.5 to 3 times in standard length . . . . . (*Parascalopsis*) → 39
- 38b. Two or 3 pairs of small canines anteriorly in upper jaw, a single pair of larger, flared canines anteriorly on either side of lower jaw (Fig. 21); second anal-fin spine shorter and less robust than third (Fig. 20a); body depth 3 to 3.5 times in standard length . . . (*Pentapodus*) → 44
- 39a. Total gill rakers on first gill arch 17 to 19 . . . . . *Parascalopsis eriomma*  
(Indo-West Pacific)
- 39b. Total gill rakers on first gill arch 8 to 10. . . . . → 40
- 40a. Preopercle more or less entirely scaly or with an incomplete naked flange posteriorly on its free margin (Fig. 22a) . . . . . *Parascalopsis tosenis*  
(southern Japan, Philippines, Indonesia)
- 40b. Preopercle with a distinct broad naked flange bordering its free margin (Fig. 22b) . . . . . → 41

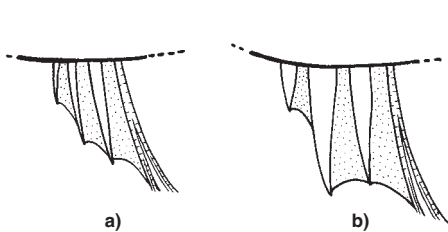


Fig. 20 anal-fin spines

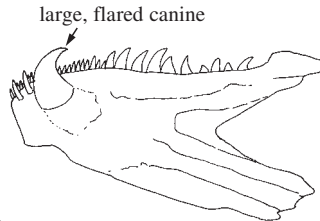


Fig. 21 lower jaw (dentary) of *Pentapodus*

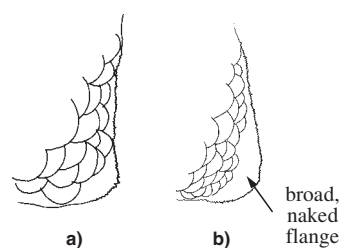


Fig. 22 Squamation on preopercle



- 41a. Pelvic fins not reaching to or near level of anus, length of pelvic fins 1.6 to 1.9 times in head length; 4 or 5 transverse scale rows above lateral line; interorbital width 1 to 1.3 times in eye diameter . . . . . *Parascalopsis rufomaculatus*  
(northwestern Australia)
- 41b. Pelvic fins reaching close to or beyond level of anus, length of pelvic fins 1.2 to 1.5 times in head length; 2 ½ or 3 ½ transverse scale rows above lateral line; interorbital width 1.3 to 2.2 times in eye diameter . . . . . → 42
- 42a. Triangular black spot above and behind eye . . . . . *Parascalopsis melanophrys*  
(East Malaysia, East Indonesia)
- 42b. Triangular black spot above and behind eye absent . . . . . → 43
- 43a. Dusky band joining nostrils across snout; fourth or fifth dorsal-fin ray elongate in larger specimens . . . . . *Parascalopsis tanyactis*  
(Philippines, Indonesia, northwestern Australia)
- 43b. Dusky band across snout absent; fourth or fifth dorsal-fin ray not notably elongate . . . . . *Parascalopsis inermis*  
(West Pacific to East Indian Ocean)
- 44a. Caudal fin with upper rays or upper and lower rays produced into long trailing filaments . . . . . → 45
- 44b. Caudal fin without long filamentous extensions, lobes pointed, sharply pointed, or falcate . . . . . → 47

- 45a. Upper and lower lobes of caudal fin produced into long trailing filaments; lower limb of preopercle scaly, at least anteriorly (Fig. 23a); lateral-line scales 50 to 56 (usually 52 to 54) . . . . . *Pentapodus emeryii*  
(Philippines, Indonesia, northwestern Australia)
- 45b. Upper lobe of caudal fin only produced into long trailing filament; lower limb of preopercle naked (Fig. 23b); lateral-line scales 46 to 50 . . . . . → 46

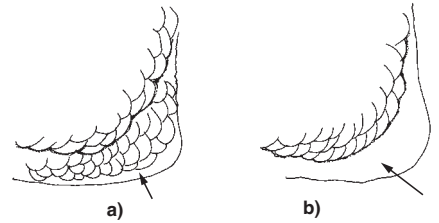


Fig. 23 squamation on preopercle

- 46a. Three dusky stripes (blue in life) on snout; first from eye to tip of snout, second from eye across snout in front of nostrils, third joining eyes behind nostrils . . . . . *Pentapodus paradiseus*  
(northeastern Australia, Papua New Guinea, Solomon Islands)
- 46b. Two dusky stripes (blue in life) on snout; first from eye to middle of upper lip, second from eye to tip of snout; no stripe joining eyes . . . . . *Pentapodus setosus*  
(Philippines, Indo-Malay Archipelago)
- 47a. Head scales reaching forward dorsally to or in front of posterior nostril . . . . . → 48
- 47b. Head scales reaching forward dorsally to anterior margin of eye or almost to posterior nostril . . . . . → 49

- 48a. Head scales reaching to between level of posterior and anterior nostrils; scaly area between nostrils rectilinear (Fig. 24a); caudal-fin lobes pointed . . . . . *Pentapodus bifasciatus*  
(Philippines, Indo-Malay Archipelago)
- 48b. Head scales extending to or in front of level of anterior nostril; scaly area between nostrils usually with a naked, wedge-shaped notch anteriorly (Fig. 24b); caudal-fin lobes falcate, upper lobe usually longer than lower lobe . . . . . *Pentapodus caninus*  
(Philippines, Indo-Malay Archipelago)

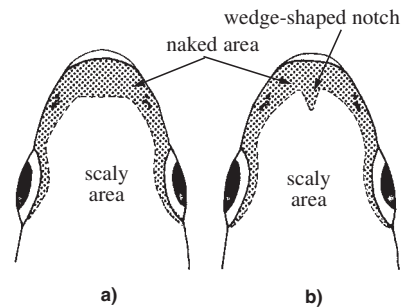







































Fig. 24 top of head showing forward extent of scales

- 49a. Lower limb of preopercle naked . . . . . → 50
- 49b. Lower limb of preopercle scaly . . . . . → 51
- 50a. Snout length greater than eye diameter; body moderately deep, its depth 3 to 3.7 times in standard length; black spot on caudal peduncle . . . . . *Pentapodus porosus*  
(northwestern Australia)
- 50b. Snout length equal to or less than eye diameter; body slender, its depth 3.9 to 4.5 times in standard length; no spot on caudal peduncle . . . . . *Pentapodus nagasakiensis*  
(Japan, South China Sea, northern Australia)
- 51a. Body pale with 3 dusky stripes (brown in life) along sides; dark bar at base of pectoral fins . . . . . *Pentapodus trivittatus*  
(Indo-Malay Archipelago, New Guinea, Solomon Islands)
- 51b. Body colour not as above; no dark bar at base of pectoral fins . . . . . *Pentapodus* sp.  
(West Pacific, from Taiwan Province of China to Samoa)

### List of species occurring in the area

The symbol  is given when species accounts are included.

-  *Nemipterus aurifilum* (Ogilby, 1910)
-  *Nemipterus aurora* Russell, 1993
-  *Nemipterus balinensis* (Bleeker, 1858-9)
-  *Nemipterus balinensoides* (Popta, 1918)
-  *Nemipterus bathybius* Snyder, 1911
-  *Nemipterus celebicus* (Bleeker, 1854)
-  *Nemipterus furcosus* (Valenciennes, 1830)
-  *Nemipterus gracilis* (Bleeker, 1873)
-  *Nemipterus hexodon* (Quoy and Gaimard, 1824)
-  *Nemipterus isacanthus* (Bleeker, 1873)
-  *Nemipterus japonicus* (Bloch, 1791)
-  *Nemipterus marginatus* (Valenciennes, 1830)
-  *Nemipterus mesoprion* (Bleeker, 1853)
-  *Nemipterus nematophorus* (Bleeker, 1853)
-  *Nemipterus nematopus* (Bleeker, 1851)
-  *Nemipterus nemurus* (Bleeker, 1857)
-  *Nemipterus peronii* (Valenciennes, 1830)
-  *Nemipterus* sp. 1
-  *Nemipterus tambuloides* (Bleeker, 1853)
-  *Nemipterus theodori* Ogilby, 1916
-  *Nemipterus thosaporni* Russell, 1991
-  *Nemipterus virgatus* (Houttuyn, 1782)
-  *Nemipterus vitiensis* Russell, 1990
-  *Nemipterus zysron* (Bleeker, 1856-57)
-  *Parascolopsis eriomma* (Jordan and Richardson, 1909)
-  *Parascolopsis inermis* (Schlegel, 1843)
-  *Parascolopsis melanophrys* Russell and Chin, 1996
-  *Parascolopsis rufomaculatus* Russell, 1986b
-  *Parascolopsis tanyactis* Russell, 1986b
-  *Parascolopsis tosensis* (Kamohara, 1938)
-  *Parascolopsis townsendi*
-  *Pentapodus bifasciatus* (Bleeker, 1848)
-  *Pentapodus caninus* (Cuvier, 1830)
-  *Pentapodus emeryii* (Richardson, 1843)
-  *Pentapodus nagasakiensis* (Tanaka, 1915)
-  *Pentapodus paradiseus* (Günther, 1859)
-  *Pentapodus porosus* (Valenciennes, 1830)

- *Pentapodus setosus* (Valenciennes, 1830)
- *Pentapodus* sp.
- *Pentapodus trivittatus* (Bloch, 1791)
- *Pentapodus vitta*
- *Scaevius milii* (Bory de Saint-Vincent, 1823)
- *Scolopsis affinis* Peters, 1877
- *Scolopsis auratus* (Park, 1797)
- *Scolopsis bilineatus* (Bloch, 1793)
- *Scolopsis ciliatus* (Lacepède, 1802)
- *Scolopsis lineatus* Quoy and Gaimard, 1824
- *Scolopsis margaritifer*
- *Scolopsis monogramma* (Kuhl and Van Hasselt, 1830)
- *Scolopsis taeniopterus* (Kuhl and van Hasselt, 1830)
- *Scolopsis temporalis* (Cuvier, 1830)
- *Scolopsis trilineatus* Kner, 1868
- *Scolopsis vosmeri* (Bloch, 1792)
- *Scolopsis xenochrous* Günther, 1872

## References

- Russell, B.C. 1990. FAO species catalogue. Vol. 12. Nemipterid fishes of the world (threadfin breams, whiptail breams, monocle breams, dwarf monocle breams, and coral breams). Family Nemipteridae. An annotated and illustrated catalogue of nemipterid species known to date. *FAO Fish. Synop.*, (125)12. Rome, FAO, 149 p.
- Russell, B.C. 1991. Description of a new species of *Nemipterus* (Pisces: Perciformes: Nemipteridae) from the western Pacific, with re-descriptions of *Nemipterus marginatus* (Valenciennes), *N. mesoprion* (Bleeker) and *N. nematopus* (Bleeker). *J. Nat. Hist.*, 25:1379-1389.
- Russell, B.C. 1993. A review of the threadfin breams of the genus *Nemipterus* (Nemipteridae) from Japan and Taiwan, with description of a new species. *Japan. J. Ichthyol.*, 39:295-310.