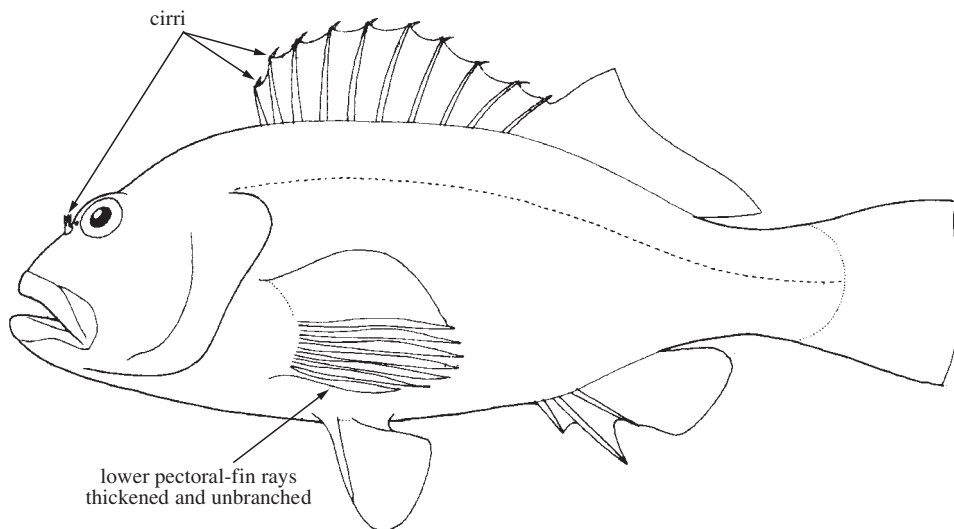


## CIRRHITIDAE

## Hawkfishes

by J.E. Randall

**Diagnostic characters:** Oblong fishes (size to about 30 cm), body depth 2 to 4.6 times in standard length. A fringe of cirri on posterior edge of anterior nostril. Two indistinct spines on opercle. A row of canine teeth in jaws, the longest usually anteriorly in upper jaw and half-way back on lower jaw; a band of villiform teeth inside the canines, broader anteriorly (in lower jaw only anteriorly). **One or more cirri projecting from tips of interspinous membranes of dorsal fin. Dorsal fin continuous, with X spines and 11 to 17 soft rays, notched between spinous and soft portions;** anal fin with III spines and 5 to 7 (usually 6) soft rays; **pectoral fins with 14 rays, the lower 5 to 7 rays unbranched and usually enlarged,** with the membranes deeply incised; pelvic fins with I spine and 5 soft rays. Principal caudal-fin rays 15. Branchiostegal rays 6. Scales cycloid. Swimbladder absent. Vertebrae 26. **Colour:** variable with species.

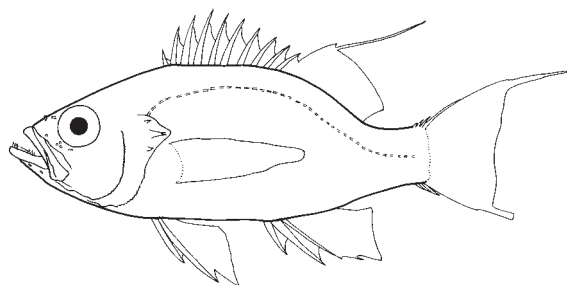


**Remarks:** The hawkfish family consists of 10 genera and 38 species, 33 of which occur in the Indo-Pacific region; 19 species are found in the Western Central Pacific.

**Habitat, biology, and fisheries:** Cirrhitids are bottom-dwelling fishes of coral reefs or rocky substrata; the majority occur in shallow water. They use their thickened lower pectoral-fin rays to wedge themselves in position in areas subject to surge. All species are carnivorous, feeding mainly on benthic crustaceans. *Cyprinocirrhitus polyactis*, however, is primarily a zooplankton-feeder (though still often seen at rest on the bottom). Most hawkfishes are small; separate species accounts are given below for the 3 largest hawkfishes that are occasionally used as food. Some of the smaller species, notably the bright red *Neocirrhites armatus* and the long-snouted *Oxycirrhites typus*, are of value as aquarium fishes.

#### Similar families Cirrhitidae occurring in the area

Serranidae: lower 5 to 7 pectoral-fin rays not simple and thickened (except for a few *Plectranthias*); no fringe of cirri on posterior nostril; scales usually ctenoid; usually III spines on opercle; vertebrae typically 24; swimbladder present.

Serranidae (*Plectranthias*)

**Key to the genera of Cirrhitidae occurring in the area**

- 1a. Snout elongate, its length about 2 times in head length (Fig. 1); body slender, its depth 4.4 to 4.6 times in standard length; canine teeth in jaws only slightly longer than inner villiform teeth and nearly uniform in size . . . . . *Oxycirrhites*
- 1b. Snout not elongate, its length 2.8 to 5 times in head length; body not slender, its depth 2 to 3.4 times in standard length; canine teeth in jaws markedly longer than inner villiform teeth, those at front of upper jaw and side of lower jaw enlarged . . . . . → 2
- 2a. Caudal fin lunate, the lobes produced (Fig. 2); soft dorsal-fin rays 16 or 17 . . . . . *Cyprinocirrhites*
- 2b. Caudal fin rounded, truncate, or slightly emarginate; soft dorsal-fin rays 11 to 15 . . . . . → 3

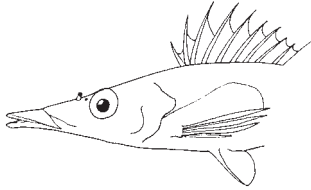


Fig. 1 *Oxycirrhites*

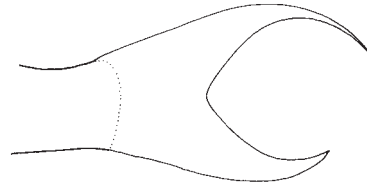


Fig. 2 *Cyprinocirrhites*

- 3a. No large scales on cheek (small scales in more than 12 irregular rows) (Fig. 3) . . . . . → 4
- 3b. Four to 6 rows of large scales on cheek (small scales usually present as well) (Fig. 4) . . . . . → 5

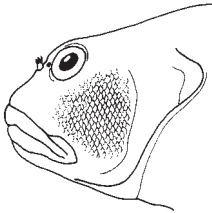


Fig. 3

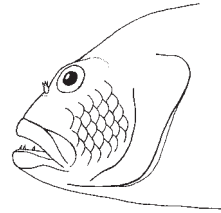
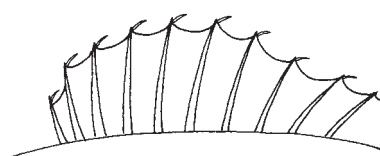


Fig. 4

- 4a. Body not deep and not very compressed, its depth 2.6 to 3.4 times in standard length; body width 1.5 to 1.9 times in body depth; soft dorsal-fin rays 11 (rarely 12); palatine teeth present; upper margin of preopercle finely serrate or smooth; lower 7 pectoral-fin rays unbranched . . . . . *Cirrhites*
- 4b. Body deep and compressed, its depth 2 to 2.4 times in standard length; body width 2.9 to 3.1 times in body depth; soft dorsal-fin rays 13; palatine teeth absent; upper margin of preopercle coarsely serrate; lower 6 pectoral-fin rays unbranched . . . . . *Neocirrhites*
- 5a. Five rows of large scales between lateral line and spinous portion of dorsal fin; a single cirrus from membrane near tip of each dorsal-fin spine (Fig. 5a) membranes of spinous portion of dorsal fin not deeply incised, those between longest dorsal-fin spines extending 4/5 or more of distance from base to tip of spines; palatine teeth absent . . . . . *Paracirrhites*
- 5b. Three or 4 rows of large scales between lateral line and base of spinous portion of dorsal fin; a tuft of cirri from membrane near tip of each dorsal-fin spine (Fig. 5b); membranes of spinous portion of dorsal fin deeply incised, those between longest spines less than 2/3 distance from base to tip of spines; palatine teeth present or absent. . . . . → 6



a) *Paracirrhites*



b) *Cirrhites*

Fig. 5 spinous part of dorsal fin

- 6a. Soft dorsal-fin rays 14 (rarely 15); first 2 pectoral-fin rays unbranched; preorbital with a free posterior margin; interorbital not scaly; snout not pointed, the profile from interorbital to upper lip convex. . . . . *Cirrhitops*
- 6b. Soft dorsal-fin rays 11 or 12 (rarely 13); first pectoral-fin ray unbranched, the second usually branched; preorbital with or without a free posterior margin; interorbital scaly or not scaly; snout pointed or not pointed. . . . . → 7
- 7a. Palatine teeth absent; longest dorsal-fin spine 3.5 to 4 times in body depth; snout not pointed . . . . . *Isocirrhitus*
- 7b. Palatine teeth present; longest dorsal-fin spine 1.7 to 3.2 times in body depth; snout pointed . . . . . → 8
- 8a. Preopercular margin finely serrate (Fig. 6); preorbital without a free hind margin; interorbital scaly; first soft dorsal-fin ray not produced to a filament; lower 5 (rarely 6) pectoral-fin rays unbranched . . . . . *Amblycirrhitus*
- 8b. Preopercular margin coarsely serrate (Fig. 7); preorbital with hind margin free for about 1/4 to 1/2 distance from its lower edge to eye; interorbital not scaly; first soft dorsal-fin ray usually produced into a filament; lower 6 or 7 pectoral-fin rays unbranched . . . . . *Cirrhitichthys*

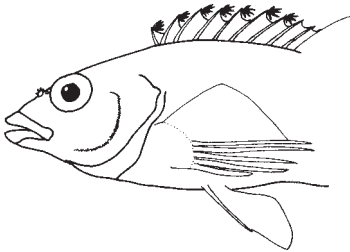


Fig. 6 *Amblycirrhitus*

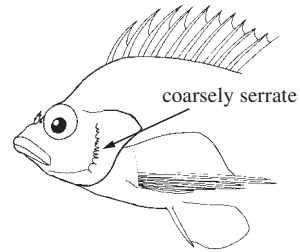


Fig. 7 *Cirrhitichthys*

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

- 1a. Lateral-line scales 48 to 50; tips of membranes of spinous portion of dorsal fin black . . . . . *Amblycirrhitus unimaculata*  
(Ryukyu Islands, Taiwan Province of China, and Samoa)
- 1b. Lateral-line scales 39 to 42; tips of membranes of spinous portion of dorsal fin not black . . . . . → 2
- 2a. A large ocellated black spot on opercle; head not crossed by 3 dark bars . . . . . *Amblycirrhitus bimacula*  
(Indo-Pacific)
- 2b. No large black spot on opercle; head crossed by 3 dark bars, the first passing ventrally from eye, the next 2 on operculum . . . . . *Amblycirrhitus oxyrhynchus*  
(Goram Islands, Indonesia)

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

- 1a. Body depth 2.4 to 2.7 times in standard length; bony interorbital space not narrow, its least width in adults about 1.7 times in eye diameter; free edge of preorbital usually with 1 to a few small spines; large dark spots on body, often coalescing to form 6 irregular bars; a pale-edged black spot larger than pupil on opercle at level of eye; 5 or 6 narrow oblique to diagonal dark bands on lower half of head, 3 or 4 of which extend ventroanteriorly from eye . . . . . *Cirrhitichthys aprinus*  
(southern Japan to Great Barrier Reef)
- 1b. Body depth 2.7 to 3 times in standard length; bony interorbital space narrow, its least width about 2 times in eye diameter; free hind edge of preorbital without spines; colour not as above . . . . . → 2

- 2a.** Rear edge of maxilla slightly anterior to a vertical at front edge of orbit; fourth dorsal-fin spine longest; first soft dorsal-fin ray not decidedly longer than other rays; body with numerous small red to reddish brown spots, many of which join to form about 7 bars; first bar vertical, centred on origin of dorsal fin and containing dark brown spots in its upper half, the other bars more oblique; 2 red to reddish brown bands extending ventroanteriorly from eye and a median band on snout . . . . . *Cirrhithichthys falco*  
(western Pacific to Maldives Islands)
- 2b.** Rear edge of maxilla reaching to or beyond a vertical at front edge of orbit; fifth dorsal-fin spine longest; first soft dorsal-fin ray decidedly longer than more posterior rays (3.5 cm standard length or larger); body with large close-set red to reddish brown blotches in 4 longitudinal rows and an additional row of smaller blotches along lateral line; head with numerous small red to reddish brown spots . . . . . *Cirrhithichthys oxycephalus*  
(Indo-Pacific and tropical eastern Pacific)

#### Key to the species of *Cirrhites* occurring in the area


- 1a.** Supraoccipital crest visible as a low ridge; no scales on interorbital space; no small white spots on head, body, and fins (white blotches nearly as large as eye present on body) . . . . . *Cirrhites pinnulatus*  
(Indo-Pacific)
- 1b.** Supraorbital crest not visible externally; a narrow median band of scales on interorbital space; small white spots on head, body, and fins, those on body arranged in about 12 longitudinal rows . . . . . *Cirrhites albopunctatus*  
(Niuafofo Island, near Tonga Islands)




#### Key to the species of *Paracirrhites* occurring in the area

- 1a.** Second pectoral-fin ray branched, at least near tip; scales present on snout anterior to nostrils; no colour mark extending diagonally upward from rear part of eye . . . . . → 2
- 1b.** Second pectoral-fin ray unbranched; no scales on snout anterior to nostrils; a prominent elongate solid or U-shaped dark mark extending diagonally upward from rear part of eye. . . . . → 3
- 2a.** Tenth dorsal-fin spine slightly longer than ninth; lateral-line scales 45 to 49; numerous small dark spots on head and anteriorly on body . . . . . *Paracirrhites forsteri*  
(Indo-Pacific)
- 2b.** Tenth dorsal-fin spine notably longer than ninth; lateral-line scales 48 to 51; numerous small dark spots on body but none on head . . . . . *Paracirrhites hemistictus*  
(Oceania except Hawaii; Great Barrier Reef, Christmas Island, and Cocos-Keeling Islands)
- 3a.** Three dark-edged pale (orange in life) transverse bands on interopercle; postocular mark not black within U-shaped border (though may be darker than rest of head); 1 colour form with a broad pale stripe, lacking a black border, posteriorly on upper side; lateral-line scales 45 to 50 . . . . . *Paracirrhites arcatus*  
(Indo-Pacific)
- 3b.** No transverse bands on interopercle; postocular mark black within its U-shaped border; a broad pale stripe, if present on upper side, broadly bordered with black; lateral-line scales 48 to 52 . . . . . → 4
- 4a.** Uniformly pale (bright yellow in life); black postocular mark narrower than pupil, originating at or below centre of rear edge of eye, its lower border not extending anterior to eye; no dark-edged white spots anteriorly on snout; no markings on maxilla; no white spot at anterior nostril . . . . . *Paracirrhites xanthus*  
(Tuamotu Archipelago, Society Islands, and Marquesas)
- 4b.** Light to dark brown (not yellow in life); postocular mark broader than pupil, originating above centre of eye, its lower border extending anterior to eye; a pair of dark-edged white spots anteriorly on snout near upper lip; one more small marks on maxilla; anterior nostril nearly enclosed in a white spot. . . . . → 5

- 5a.** Light brown with a broad pale stripe, broadly bordered in black, posteriorly on upper side of body; upper margin of preopercle smooth or with only a few small serrations . . . *Paracirrhites nesus* (Tuamotu Archipelago and Pitcairn Group)
- 5b.** Dark brown except caudal peduncle, caudal fin, and extreme ventral part of body posterior to insertion of pelvic fins which are pale (orange in life); no pale stripe on body; upper margin of preopercle finely serrate . . . . . *Paracirrhites bicolor* (Caroline Atoll and Tuamotu Archipelago)

### List of the species occurring in the area

The symbol  is given when species accounts are included.

- Amblycirrhitus bimacula* (Jenkins, 1903)  
*Amblycirrhitus oxyrinchos* (Bleeker, 1858)  
*Amblycirrhitus unimaculata* (Kamohara, 1957)  
*Cirrhichthys aprinus* (Cuvier, 1829)  
*Cirrhichthys falco* Randall, 1963  
*Cirrhichthys oxycephalus* (Bleeker, 1855)  
*Cirrhitops hubbardi* (Schultz, 1943)  
*Cirrhites albopunctatus* Schultz, 1950  
 *Cirrhites pinnulatus* (Bloch and Schneider, 1801)  
*Cyprinocirrhites polyactis* (Bleeker, 1875)  
*Isocirrhites sexfasciatus* (Schultz, 1960)  
*Neocirrhites armatus* Castelnau, 1873  
*Oxycirrhites typus* Bleeker, 1875  
*Paracirrhites arcatus* (Cuvier, 1829)<sup>1/</sup>  
*Paracirrhites bicolor* Randall, 1963  
 *Paracirrhites forsteri* (Bloch and Schneider, 1801)  
 *Paracirrhites hemisticus* (Günther, 1874)  
*Paracirrhites nesus* Randall, 1963  
*Paracirrhites xanthus* Randall, 1963

### References

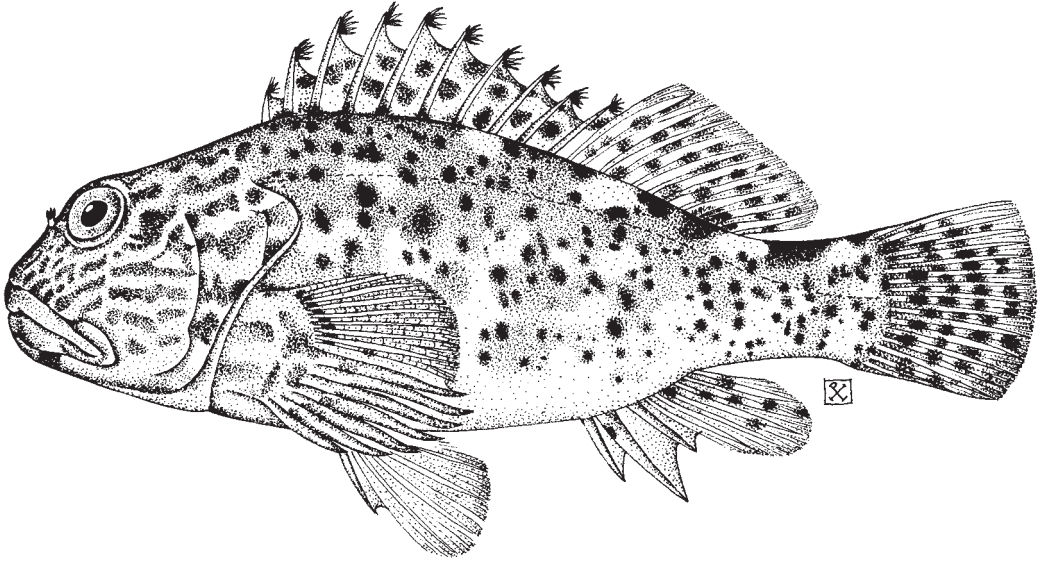
- Randall, J.E. 1963. Review of the hawkfishes (family Cirrhitidae). *Proc. U.S. Natl. Mus.*, 114:389-451.
- Randall, J.E. 1997. The hawkfish *Cirrhichthys serratus* Randall, a synonym of *C. falco* Randall. *Micronesica*, 30(1):199-203.

<sup>1/</sup> *Paracirrhites amblycephalus* (Bleeker, 1857), known from a single specimen, 78 mm standard length, from the Sangi Islands (Indonesia) is here treated as a probable synonym of *P. arcatus*.

*Cirrhites pinnulatus* (Bloch and Schneider, 1801)

**Frequent synonyms / misidentifications:** *Cirrhites alternatus* Gill, 1862; *C. spilotoiceps* Schultz, 1950 / None.

**FAO names:** En - Stocky hawkfish; Fr - Epervier de corail; Sp - Solosolo robusto.



**Diagnostic characters:** Body depth 2.7 to 3 times in standard length. Snout short and blunt. Supraorbital ridge low. Mouth large, the maxilla nearly reaching a vertical at posterior edge of eye; upper margin of preopercle finely serrate. **A continuous dorsal fin of X spines and 11 soft rays, deeply notched between spinous and soft portions; a tuft of cirri from membrane near tip of each dorsal-fin spine;** anal fin with III spines and 6 soft rays; caudal fin slightly rounded; pectoral fins not reaching a vertical at tips of pelvic fins; **pectoral-fin rays 14, the lower 7 unbranched and thickened. Lateral-line scales 39 to 44;** 4 rows of large scales above lateral line in middle of body; **scales on cheek much smaller than scales on body. Colour:** ground colour white but overlaid with squarish dark brown blotches and numerous dark orangish to reddish brown spots, leaving as white 3 rows of 5 or 6 spots of about size of eye on body; ventral thorax and abdomen white; head with reddish brown spots, sometimes conjoined to form irregular bands; median fins with reddish brown spots.

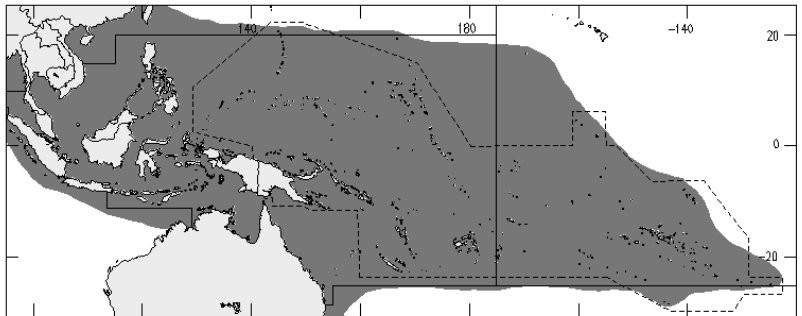
**Size:** Maximum total length 30 cm, commonly to 23 cm.

**Habitat, biology, and fisheries:** This robust hawkfish, the largest of the family in the Indo-Pacific, lives on rocky shores and reef fronts exposed to wave action. Nocturnal; feeds mainly on crabs. Generally caught from shore, usually by hook-and-line. Marketed mostly fresh.

**Distribution:** Occurs throughout the Indo-Pacific region from the Red Sea south to Port Alfred (South Africa) and east to French Polynesia (including Rapa) and the Pitcairn Group; in the western Pacific from southern Japan to the Great Barrier Reef.

**Remarks:** This species is slightly different in colour in Hawaii and appears to have a different count of gill rakers on the upper limb of the first gill arch (5 or 6 in Hawaii compared to 6 or 7 elsewhere).

The name *Cirrhites alternatus* Gill is available in the event a subspecific name is desired for the Hawaiian population.

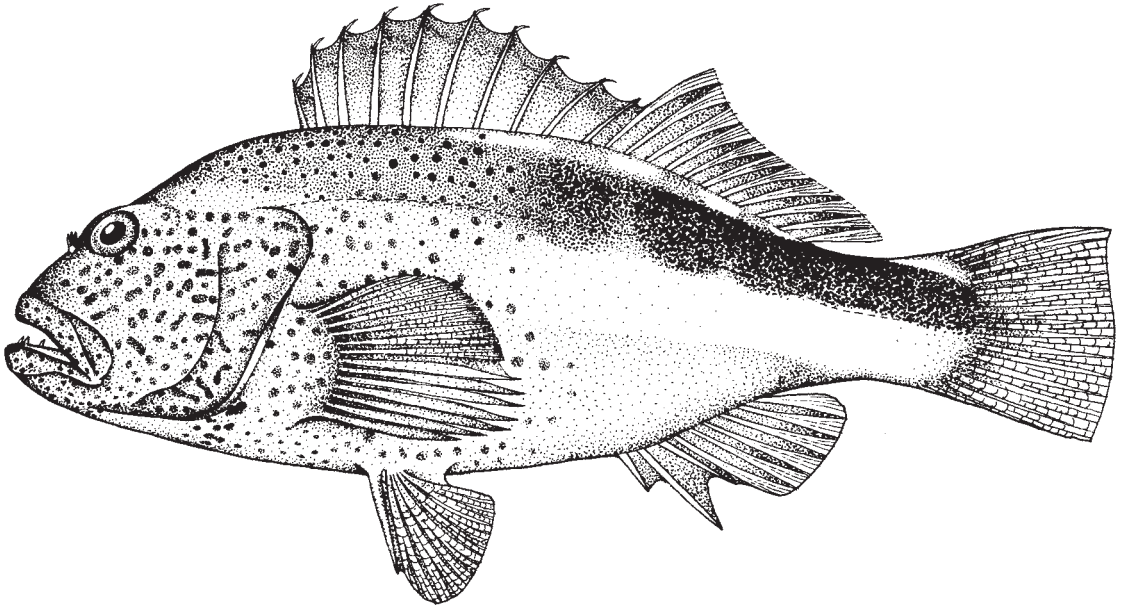




***Paracirrhites forsteri*** (Bloch and Schneider, 1801)

**Frequent synonyms / misidentifications:** *Paracirrhites typee* Randall, 1963 / None.

**FAO names:** En - Blackside hawkfish; Fr - Epervier à bande noire; Sp - Solosolo de banda negra.

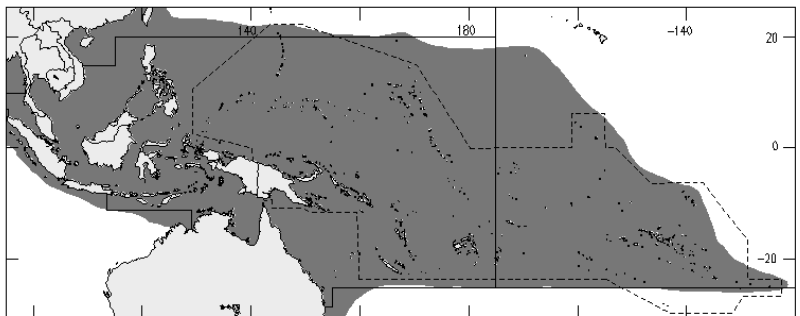


**Diagnostic characters:** Body depth 2.6 to 2.8 times in standard length. Snout short. Mouth large, the maxilla reaching posterior to a vertical at centre of eye; upper margin of preopercle finely serrate. **A continuous dorsal fin of X spines and 11 soft rays, notched between spinous and soft portions; a single cirrus from membrane near tip of each dorsal-fin spine;** anal fin with III spines and 6 soft rays; **pectoral-fin rays 14, the lower 7 unbranched and thickened;** caudal fin slightly rounded. Lateral-line scales 45 to 49; 5 rows of large scales between lateral line and spinous portion of dorsal fin; **5 or 6 rows of large scales on cheek**, in addition to small scales. **Colour:** yellowish with a faint longitudinal dark banding following scale rows; usually a broad blackish band (sometimes broken into conjoined spots) on upper side from below middle of dorsal fin nearly to middle of caudal fin; region below black band usually yellow (by virtue of reduced longitudinal banding on scale rows); head, nape, and thorax with small brownish red spots; fins varying from yellowish to pink.

**Size:** Maximum total length 22 cm, commonly to 18 cm.

**Habitat, biology, and fisheries:** A common coral-reef species, often observed sitting on live coral. Feeds mainly on small fishes. Occasionally caught throughout its range. Taken mainly by hook-and-line. Marketed mostly fresh.

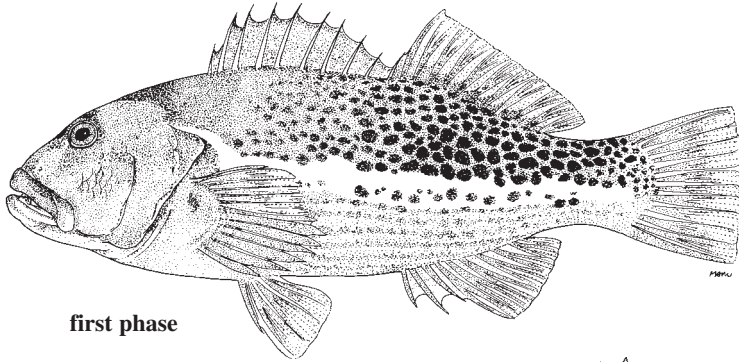
**Distribution:** Indo-Pacific, but not known from the Persian Gulf or Gulf of Oman. Tropical and subtropical islands of the Indian Ocean and coast of Africa from the Red Sea to Natal. In the Pacific from southern Japan to New South Wales, east to the islands of Oceania, including Hawaii and the Pitcairn Group.



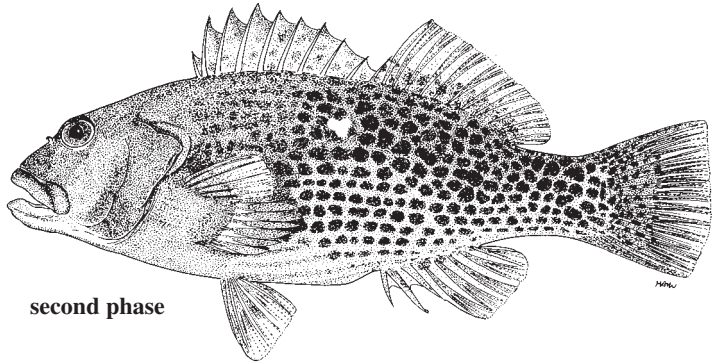
***Paracirrhites hemistictus* (Günther, 1874)**

**Frequent synonyms / misidentifications:** *Paracirrhites polystictus* (Günther, 1874) / None.

**FAO names:** En - Halfspotted hawkfish.



first phase



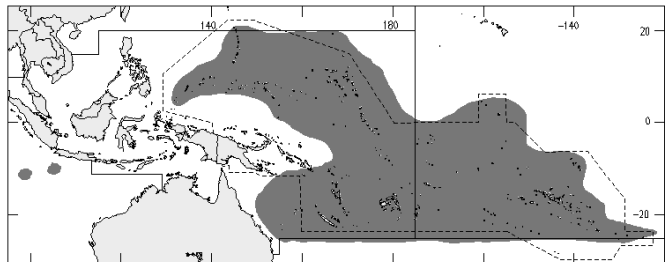
second phase

**Diagnostic characters:** Body elongate for the genus, its depth 2.8 to 3.2 in standard length. Mouth large, maxilla reaching to or posterior to a vertical at centre of eye. Upper two-fifths of margin of preopercle finely serrate, a slight concavity in margin below serrate portion. **A continuous dorsal fin of X spines and 11 soft rays**, notched between spinous and soft portions; **tenth dorsal-fin spine distinctly longer than ninth; a single cirrus from membrane near tip of each dorsal-fin spine**; anal fin with III spines and 6 soft rays; **pectoral-fin rays 14, the lower 7 unbranched and thickened**; caudal fin slightly rounded, the corners sharply angular; **lateral-line scales 48 to 51**; 5 rows of large scales between lateral line and spinous portion of dorsal fin; snout almost entirely scaly; 5 oblique rows of large scales on cheek, in addition to small scales. **Colour:** 2 colour phases, not related to sex, the first greenish on back, densely spotted with black, pale yellow below, with series of dark yellow spots forming stripes following scale rows; an irregular white stripe slightly below midside of body with a few black spots below and occasionally within stripe; head greenish to pinkish grey; fins yellowish. Second (*Paracirrhites polystictus*) phase grey with numerous close-set dark brown spots on body and a white or pale pink spot slightly smaller than eye on upper side in middle of body; head reddish grey without markings.

**Size:** Maximum total length 29 cm, commonly to 20 cm.

**Habitat, biology, and fisheries:** A shallow-water, coral-reef species generally found at oceanic Islands. Rests motionless on the substratum, often on live coral. Food habits not investigated; probably feeds opportunistically on crustaceans and small fishes that venture near. Generally caught by hook-and-line. Of limited commercial importance.

**Distribution:** Occurs on all the islands of Oceania except Hawaii and Easter Island; also found on the Great Barrier Reef and Christmas Island and Cocos-Keeling Islands in the eastern Indian Ocean. Curiously, it remains unreported from any continental shore or any of the large islands of the Indo-Malayan region.



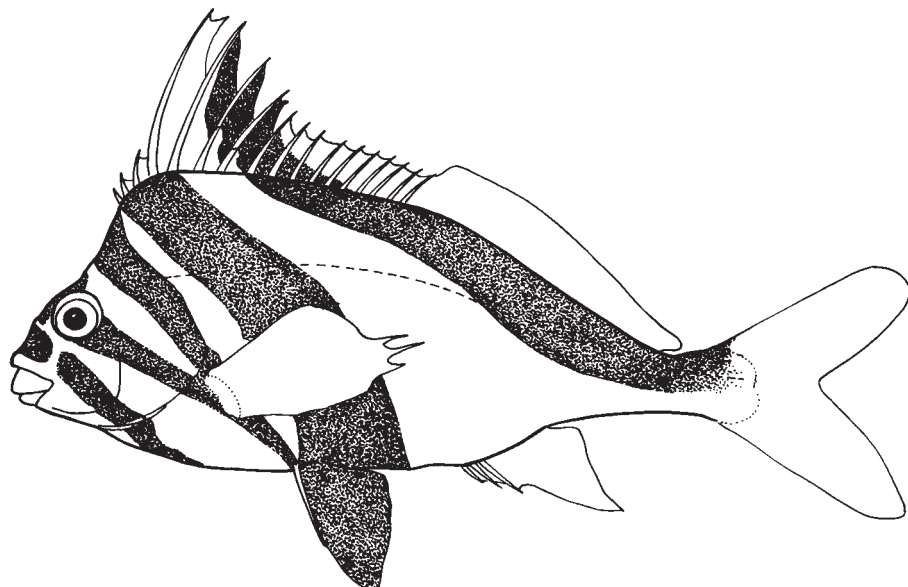


## CHEILODACTYLIDAE

## Morwongs

by J.E. Randall

**Diagnostic characters:** Body oblong and moderately compressed (size to about 45 cm). A single flat spine on opercle; margin of preopercle smooth. **Mouth small, terminal to slightly inferior, the adults with thick lips;** maxilla largely exposed on cheek; no supramaxilla. **Teeth small, villiform, in bands anteriorly in jaws, none on vomer or palatines.** Branchiostegal rays 6. **A continuous dorsal fin with XIV to XXII spines and 19 to 39 soft rays; anal fin with III spines and 7 to 19 soft rays;** caudal fin forked; **lower 4 to 7 pectoral-fin rays unbranched, thickened, and prolonged, as much as the distal 50% free of membrane;** pelvic fins with I spine and 5 soft rays, their base distinctly posterior to base of pectoral fins. Scales cycloid and small, 45 to 85 in lateral line; dorsal and anal fins with a basal scaly sheath. Vertebrae 13-14 + 21. **Colour:** most of the species have vertical to oblique dark bands.



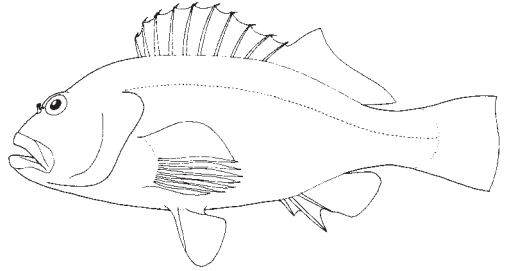
**Habitat, biology, and fisheries:** Morwongs are bottom-dwelling fishes, mainly found inshore, though a single species is taken commercially in southern Australia by trawling to depths of 400 m. They feed on a wide variety of small invertebrates which are sorted from the mouthfuls of sand and detritus that they ingest from the substratum. The postlarvae are very deep bodied and extremely compressed (sometimes referred to as the 'paper fish-stage', and may attain large size. The late postlarval stage of *Goniistius vittatus* may reach 6 cm total length. A specimen of this species from the northeastern Hawaiian Islands collected from the nest of a white tern was mistakenly described as a new genus and new family, Gregoryinidae, by Fowler and Ball (1924). Most of the species are valuable food fishes, but only a few occur marginally in the Western Central Pacific.

**Distribution:** The Cheilodactylidae is primarily a temperate southern hemisphere family. Australia has the largest number of species, 14; New Zealand has 6 (all shared with Australia), South Africa 5, Chile and Peru 3, and Argentina 1. In the northern hemisphere, there are 3 species in Japan and China and 1 in Hawaii. The group is clearly antitropical in its distribution.

**Remarks:** Randall (1983) classified 8 Indo-Pacific species of *Cheilodactylus* in the subgenus *Goniistius*. In a current study of the Cheilodactylidae, Chris Burridge (pers. comm.) has concluded that *Goniistius* should be elevated to a genus for these species except for *Cheilodactylus nigripes* that may warrant the description of a new genus. He has reclassified *C. ephippium* and *C. fuscus* in the genus *Morwong* Whitley. He wrote, "I believe that *Cheilodactylus* should be restricted to 2 South African species, *C. fasciatus* and *C. pixi*."

### Similar families occurring in the area

Of the 4 families of fishes in the superfamily Cirrhitioidea, only the hawkfish family (Cirrhitidae) occurs in the area with the Cheilodactylidae. The species of this family are easily separated by having X dorsal spines compared to XIV to XXII for the cheilodactylids.



Cirrhitidae

### Key to the species of Cheilodactylidae occurring in the area

- 1a.** Anal-fin rays 16 or 17; dorsal-fin rays 27 or 28; pectoral-fin rays 14 or 15 (usually 15); no bony protuberances anteriorly on head . . . . . *Nemadactylus douglasii*  
(southern Queensland to Tasmania and New Zealand)
- 1b.** Anal-fin rays 8 or 9; dorsal-fin rays 29 to 35; pectoral-fin rays 13 or 14; adults with 2 pairs of knob-like bony protuberances, 1 anterior to eyes and 1 just above upper lip . . . . . → 2
- 2a.** Third and fourth dorsal-fin spines subequal; body grey-brown dorsally and on most of caudal peduncle, shading to whitish below, with 2 narrow white bars on caudal peduncle and 2 short oblique white bands below soft portion of dorsal fin . . . . . *Morwong fuscus*  
(southern Queensland to Victoria, east to Lord Howe Island and New Zealand)
- 2b.** Fourth dorsal-fin spine much longer than third spine, the third 3.75 to 5 times in fourth; body whitish with 2 oblique black bands; head whitish, with 2 oblique black bands which converge and join at pectoral-fin base . . . . . → 3
- 3a.** Dorsal-fin rays 32 to 35; body depth 2.6 to 2.85 times in standard length; no oblique black band from below eye to chest; pelvic fins not dark brown to black . . . . . *Goniistius vestitus*  
(southern Queensland to central New South Wales, east to Lord Howe Island, Norfolk Island, and New Caledonia)
- 3b.** Dorsal-fin rays 29 to 33; body depth 2.5 to 2.6 times in standard length; an oblique black band from below eye to ventrally on chest; pelvic fins dark brown to black . . . . . *Goniistius vittatus*  
(Hawaii, Lord Howe Island, Kermadec Islands, and New Caledonia)

### List of species occurring in the area

- Goniistius vestitus* (Castelnau, 1878)  
*Goniistius vittatus* (Garrett, 1864)  
*Morwong fuscus* (Castelnau, 1879)  
*Nemadactylus douglasii* (Hector, 1875)

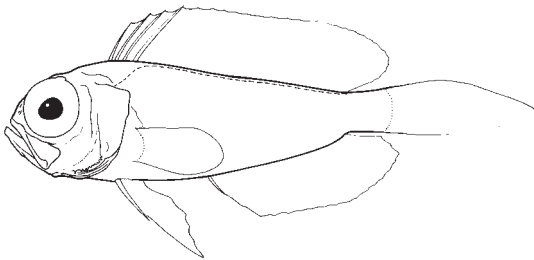
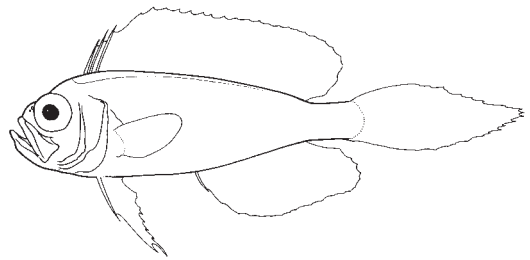
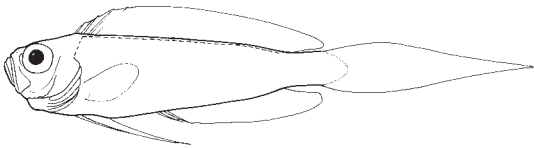
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**CEPOLIDAE****Bandfishes**

by W.F. Smith-Vaniz

**Diagnostic characters:** Small (to about 40 cm), moderately to noticeably elongate fishes with **compressed, tapering body and lanceolate caudal fin**. Head short, with blunt snout. Eyes relatively large and high on head. Mouth large, oblique; upper jaw broad at end, without supramaxilla, and extending to below posterior margin of eye; a single row of slender, slightly curved teeth in jaws with an inner cluster of teeth at symphysis in some species. **Dorsal fin continuous, with 0 to IV flexible spines and 21 to 89 segmented rays**; anal fin with 0 or I spine and 13 to 102 segmented rays; **caudal fin lanceolate**, middle 9 to 15 rays branched; **pelvic fins positioned below or slightly anterior to pectoral fins**, with I spine and 5 segmented rays; **outermost segmented pelvic-fin ray unbranched or weakly branched, 4 inner rays distinctly branched**. Lateral line high on body, close to dorsal-fin base, terminating posteriorly near end of fin; **lateral-line tubes or canals on scales not embedded in skin**. Scales cycloid (smooth) or with crenulate margins, relatively large to minute. **Colour:** in life red or pink; most species have a distinctive dark stripe on the membrane (usually hidden) connecting the premaxillary and maxillary bones of the upper jaw.

*Sphenanthias macrophthalmus**Owstonia maccullochi**Sphenanthias sibogae**Acanthocepola limbata*

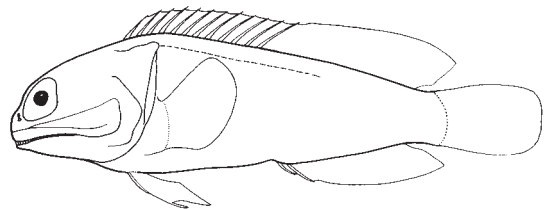
**Habitat, biology, and fisheries:** Relatively uncommon fishes taken by trawls in shallow to deep depths (to at least 475 m). Bandfishes occur on level bottom, sand or mud substrates where they live in burrows, which they excavate themselves. Not of significant commercial importance, but consumed by the local population in some areas.

**Similar families occurring in the area**

The combination of a lanceolate tail, large oblique mouth, and the arrangement of the pelvic-fin rays, consisting of I spine and 5 segmented rays (the outermost ray unbranched or weakly branched and the inner 4 branched), will distinguish the bandfishes from all other families.

Additional distinguishing characters of the superficially similar Opistognathidae are the following:

Opistognathidae: dorsal-fin spines X or XI (0 to IV in Cepolidae); caudal fin rounded (moderately to strongly lanceolate in Cepolidae); pelvic fins with 5 segmented rays, the outer 2 unbranched.

**Opistognathidae**

### Partial key to the species of Cepolidae occurring in the area

Note: the taxonomy of this family is very poorly known and even generic definitions and limits are not well established. Following traditional usage, *Sphenanthias* Weber, 1913 is tentatively recognized as distinct from *Owstonia* Tanaka, 1908, solely on the basis of a different lateral line configuration (see key). However, some species of “*Sphenanthias*” appear to be more closely related to species of *Owstonia* than to *S. sibogae*, the type species. A number of undescribed species belonging to the subfamily Owstoniinae occur in the area and at this time it is not possible to provide a reliable key for their identification.

- 1a.** Total dorsal-fin elements (i.e. spines plus soft rays) 71 to 89; last soft ray of dorsal and anal fins narrowly to broadly connected to caudal fin by a membrane . . . (subfamily **Cepolinae**) → 2
- 1b.** Total dorsal-fin elements 23 to 27; last soft ray of dorsal and anal fins not connected to caudal fin by a membrane. . . . . (subfamily **Owstoniinae**) → 6
- 2a.** Preopercular margin with spines; cheeks scaly . . . . . → 3
- 2b.** Preopercular margin without spines; cheeks naked . . . . . → 5
- 3a.** Middle 8 to 10 caudal-fin rays branched (segmented caudal-fin rays 7 in upper lobe, 6 in lower lobe); vertebrae 12 + 44-48 . . . . . *Acanthocephala abbreviata*
- 3b.** No branched caudal-fin rays; vertebrae 12 + 49-67 . . . . . → 4
- 4a.** Segmented caudal-fin rays 6 or 7 in upper lobe, 6 or 7 in lower lobe (total 12 to 14); vertebrae 12 + 49-52 . . . . . *Acanthocephala krustensternii*
- 4b.** Segmented caudal-fin rays 5 in upper lobe, 5 in lower lobe (total 10); vertebrae 12 + 60-67. . . . . *Acanthocephala limbata*
- 5a.** Dorsal fin with III spines and 54 to 57 soft rays; anal fin with I spine and 50 to 53 soft rays; vertebrae 14 + 45-48 . . . . . *Cepola australis*
- 5b.** Dorsal fin with III spines and 65 soft rays; anal fin with 62 soft rays, anal-fin spine absent; vertebrae 16 + 53 . . . . . *Cepola schlegelii*
- 6a.** Lateral line continues anteriorly, forming loop in front of dorsal fin . . . . . *Owstonia* spp.
- 6b.** Lateral line does not form loop in front of dorsal fin . . . . . *Sphenanthias* spp.

### List of species occurring in the area

*Acanthocephala abbreviata* (Valenciennes in Cuvier and Valenciennes, 1835)

*Acanthocephala krustensternii* (Temminck and Schlegel, 1845)

*Acanthocephala limbata* (Valenciennes in Cuvier and Valenciennes, 1835)

(*Cepola indica* Day, 1888 and *Acanthocephala cuneatus* Smith, 1935 are both considered to be synonyms)

*Cepola australis* Ogilby, 1899

*Cepola schlegelii* Bleeker, 1854

*Owstonia dorypterus* (Fowler, 1934)

*Owstonia maccullochi* Whitley, 1934 (may be a junior synonym of *O. totomiensis*)

*Owstonia totomiensis* Tanaka, 1908

*Sphenanthias grammodon* (Fowler, 1934)

*Sphenanthias macrophthalmus* Fourmanoir, 1985

*Sphenanthias nigromarginatus* Fourmanoir, 1985

*Sphenanthias sibogae* Weber, 1913 (*S. pectinifer* Myers, 1939 appears to be a synonym)

### References

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