

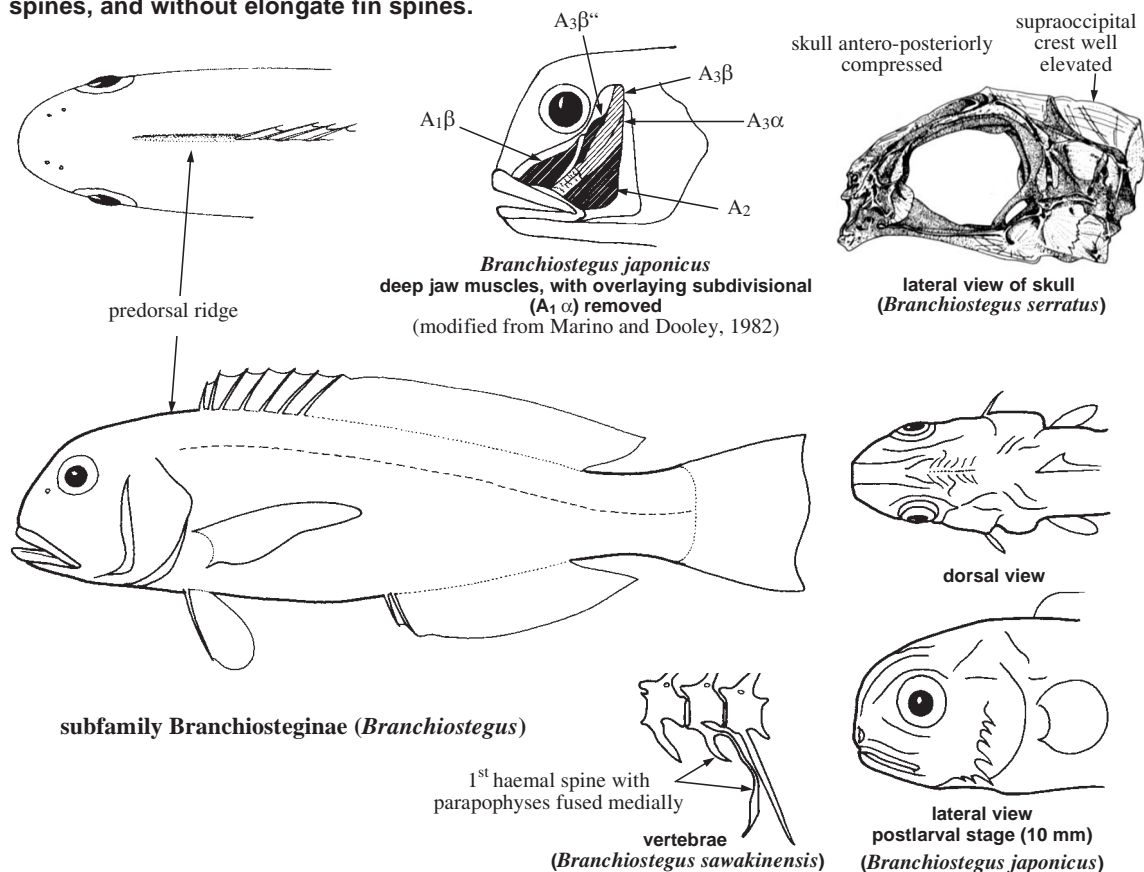
BRANCHIOSTEGIDAE

(= Malacanthidae)

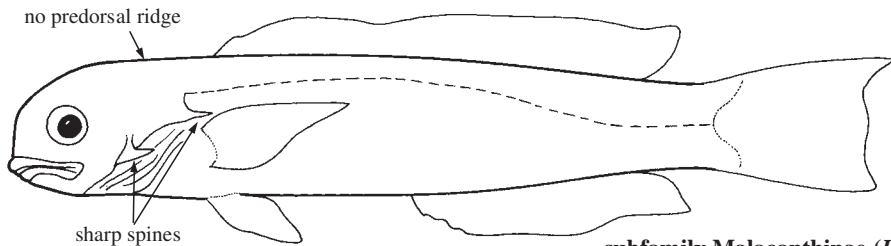
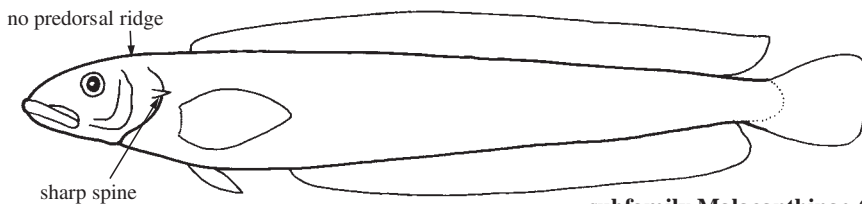
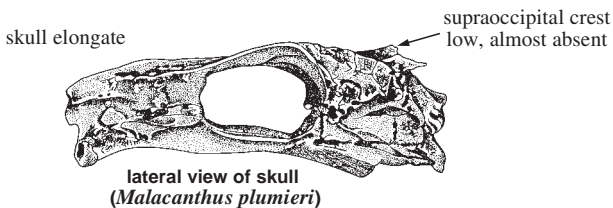
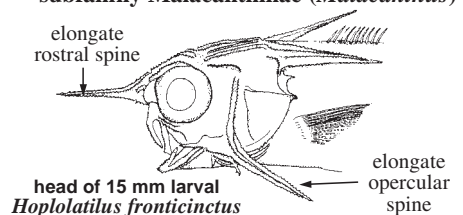
Tilefishes (also, quakerfish, blanquillos, burrowfishes, amadais, horseheads, and sand tilefishes)

by J.K. Dooley

D diagnostic characters (subfamily Branchiosteginae, genus *Branchiostegus*): Body quadriform and square-headed; body depth 22 to 30% (usually 27%) standard length. Predorsal ridge (a raised seam in front of dorsal fin) reduced, but always present. Predorsal length 27 to 37% (usually 32%) standard length; head length 24 to 33% (usually 28%) standard length; head depth 82 to 108% (usually 95%) head length; suborbital depth 14 to 35% (usually 19 to 25%) head length; orbit diameter 20 to 37% (usually 24 to 30%) head length. Preopercle finely serrated on upper limb to angle or just below, lower limb with few or no serrae; no enlarged spine at preopercular angle; preopercle angle 85° to 115° ; opercle with a single soft, blunt spine. Jaws slightly oblique, extending posteriorly from in front of orbit under rear nostril to below rear rim of pupil; mouth terminal to slightly inferior, jaws each side with 4 or 5 mandibular pores (usually 5). Total gill rakers on first gill arch 18 to 24. Dorsal and anal fins long and continuous; length of dorsal-fin base plus anal-fin base 80 to 97% (usually less than 90%) standard length. Dorsal fin with VI to VIII (usually VII) spines and 14 to 16 (usually 15) soft rays. Anal fin with II spines and 11 to 13 (usually 12) soft rays. Caudal fin rounded, truncate, or double emarginate (never lunate or forked), with 17 principal rays, sometimes with elongate tips. Scales ctenoid (in pockets) over most of body, cycloid in head region. Pored lateral-line scales usually 47 to 51 (67 to 72 only in *B. serratus*); scales above lateral line 6 to 11, below lateral line 16 to 31. Vertebrae 10+14; supraoccipital skull crest well elevated and elongate; well-formed foramen in the ceratohyal; first haemal spine over second anal-fin ray with parapophyses fused medially forming an arch for rear of swimbladder; ratio of anal-fin supports to haemal spines 0.86:1; predorsal-fin supports always 0-0-2-; procurrent caudal-fin rays 10 or 11 (usually 10) in upper lobe, and 9 or 10 (usually 9) in lower lobe; 1 uroneural and parhypural, 3 epurals, and 2+3 autogenous hypurals. Highly complex adductor mandibulae (jaw) musculature, with 5 major subdivisions (see figure of jaw muscles below). Larvae pelagic, with numerous head spines and serrated ridges, no rostral head spines, and without elongate fin spines.



Diagnostic characters (subfamily Malacanthinae, genera *Hoplostilatus*, *Malacanthus*): **Body elongate, fusiform or nearly cylindrical, with blunt or rounded snout; body depth 15 to 29% (usually 18 to 25%) standard length (*Hoplostilatus*), or 12 to 20% (usually 14 to 17%) standard length (*Malacanthus*). No predorsal ridge. Predorsal length 19 to 34% (usually 22 to 30%) standard length; head length 19 to 32% (usually 21 to 29%) standard length; head depth 57 to 86% head length (*Hoplostilatus*), or 49 to 64% head length (*Malacanthus*); suborbital depth 3 to 7% head length (*Hoplostilatus*), or 5 to 20% head length (*Malacanthus*); orbit diameter 22 to 31% head length (*Hoplostilatus*), or 13 to 29% head length (*Malacanthus*). Preopercle serrate (*Hoplostilatus*), or smooth (*Malacanthus*); an enlarged spine at angle of preopercle (*Hoplostilatus*), or spine absent (*Malacanthus*); opercle with single sharp pointed spine (not found in Branchiosteginae: only a single soft blunt spine). Mouth terminal to slightly inferior, jaws slightly oblique, extending posteriorly to eye or just under eye in *Malacanthus*, and to posterior rim of orbit and beyond in *Hoplostilatus*; jaws each side with 4 to 6 mandibular pores (4 in *Malacanthus*, usually 5 or 6 in *Hoplostilatus*). Total gill rakers on first gill arch 16 to 28 (usually 16 to 19, moderate to elongate) in *Hoplostilatus*, and 6 to 20 (usually 9 to 15, reduced and blunt) in *Malacanthus*. Dorsal and anal fins long and continuous; length of dorsal-fin base plus anal-fin base 80 to 135% (usually more than 90%) standard length. Dorsal-fin spines III to X in *Hoplostilatus*, and I to IV (usually II or IV) in *Malacanthus*; dorsal-fin rays 13 to 34 (*Hoplostilatus*), or 37 to 55 (*Malacanthus*). Anal-fin spines I or II (I in *Malacanthus*; usually II in *Hoplostilatus*, only *H. cuniculus* with I); anal-fin rays 12 to 20 in *Hoplostilatus*, and 37 to 55 (usually 39 to 51) in *Malacanthus*. Caudal fin falcate with rounded or pointed lobes, or truncate (may have elongate rays dorsally); caudal fin with 17 principal rays. Scales ctenoid in pockets over most of body, mostly cycloid in head region; pored lateral-line scales 89 to 141 in *Hoplostilatus*, 116 to 181 in *Malacanthus*; scales above lateral line 10 to 20 in *Hoplostilatus*, 7 to 17 in *Malacanthus*; scales below lateral line 34 to 49 in *Hoplostilatus*, 31 to 53 in *Malacanthus*. Vertebrae 10-11+14; supraoccipital skull crest much reduced to a small pointed process; first haemal spine over first or second anal-fin ray in *Hoplostilatus*, and over anal-fin rays 12 to 18 in *Malacanthus*; first haemal spine formed from parahypophyses fused only at their tips, forming a broad elliptical arch (unlike Branchiosteginae where they are fused medially forming a curved arch for rear of swimbladder); ratio of anal-fin supports to haemal spines 0.96 to 1.46 (*Hoplostilatus*) or 2.8 to 3.9 (*Malacanthus*); predorsal-fin supports 0-0-2- (*Hoplostilatus*) or 0-0-1-, 0-1-, or 2- (*Malacanthus*); procurent caudal-fin rays in upper fin lobe 10 to 12 (*Malacanthus*) or 11 to 13 (*Hoplostilatus*), and in lower lobe 9 to 13 (*Hoplostilatus*) or 10 to 12 (*Malacanthus*); a uroneural and parhypural, 3 epurals, and 2+3 autogenous hypurals. Highly complex adductor mandibulae (jaw) musculature but less complex than Branchiosteginae, with only 4 major subdivisions (lacking subdivision A₃B) (cf. figure of jaw muscles on previous page). Larvae pelagic, with numerous enlarged head spines and serrated ridges.**

subfamily Malacanthinae (*Hoplostilatus*)subfamily Malacanthinae (*Malacanthus*)lateral view of skull
(*Malacanthus plumieri*)head of 15 mm larval
Hoplostilatus fronticinctus

Habitat, biology, and fisheries: Tilefishes are a moderately deep, soft-bottom (mud or sand, or mixed sand, mud, and shell) dwelling group. They are usually caught at depths of 60 to 200 m in the area. Usually found living in burrows along the margins of continents or oceanic islands. The genus *Branchiostegus* is most abundant in the eastern Pacific and Indian oceans and Red Sea (15 nominal species). One species (*B. semifasciatus*) is also found in the eastern Atlantic off West Africa. The group all have pelagic larvae with elaborate patterns of head and scale spination until metamorphosis takes place when they become benthic prejuveniles (spination occurs only between 3 and 13 mm total length in *B. japonicus*). Tilefishes feed mainly on invertebrates (molluscs, polychaete worms, shrimps, squids, small crabs), although they may feed on small fish. They are very high quality food fishes and several species are commercially important. They are caught by hook-and-line or bottom longline and in trawls. For example, the fishery of *B. japonicus* is one of the more important fisheries of the East China Sea (Japanese landings have ranged from 6 000 to 12 000 t per year). The South China Sea is the location of another important tilefish fishery. Total annual tilefish landings for the Western Central Pacific probably exceed 25 000 t, but statistical data are not available for the area. Tilefishes are marketed fresh, dried, salted, or canned.

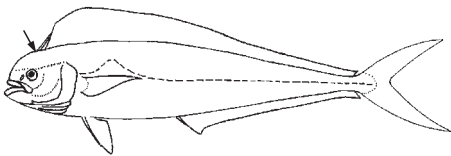
Remarks: The tilefishes are comprised of 2 morphologically different and evolutionarily distinct groups which are distinct enough to be considered as separate families (Branchiostegidae and Malacanthidae). However, for reasons of conformity in this field guide, these groups are tentatively treated herein as subfamilies following the classification in Nelson's (1994) "Fishes of the world", and Eschmeyer's (1998) "Catalog of fishes". However, the family name Malacanthidae used in these works must then be considered a junior synonym of Branchiostegidae. The subfamily Malacanthinae is also sometimes known as Latilinae.

Similar families occurring in the area

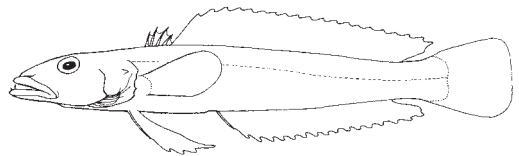
Representatives of several families look superficially similar to tilefishes, but can be separated from them as follows:

Coryphaenidae: dorsal fin extends forward to nape.

Pinguipedidae: always I anal-fin spine (versus I or II in Branchiostegidae).



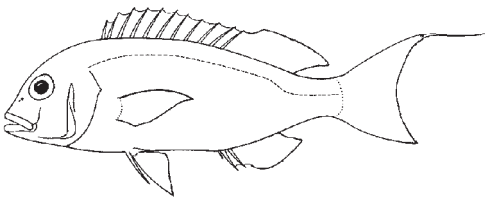
Coryphaenidae



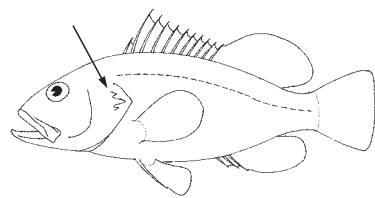
Pinguipedidae

Nemipteridae: caudal fin always forked (usually not forked in Branchiostegidae, except some *Hoplostettilus*); dorsal-fin spines X (versus VI to X); anal-fin spines III (versus I or II); anal-fin rays 7 or 8 (versus 11 to 55).

Serranidae: anal-fin spines III (versus I or II in Branchiostegidae); 1 to 3 opercular spines (versus a single sharp pointed spine or a single soft blunt spine).



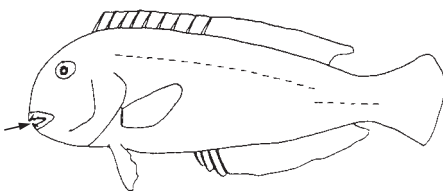
Nemipteridae



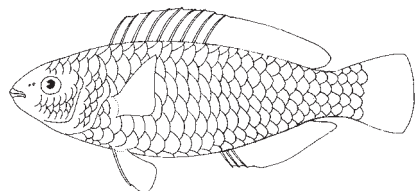
Serranidae

Labridae: with prominent nipping canines.

Scaridae: mouth smaller; scales larger; lateral line discontinuous.



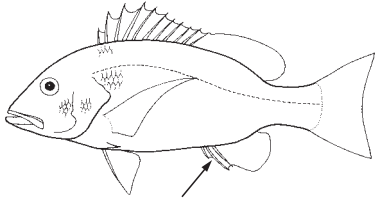
Labridae



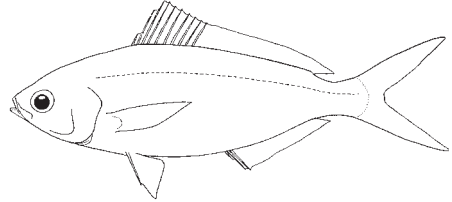
Scaridae

Lutjanidae: anal-fin spines III (versus I or II in Branchiostegidae); pointed head profile.

Caesionidae: caudal fin forked; mouth smaller; dorsal-fin spines X to XV (versus VI to X in Branchiostegidae); anal-fin spines III (versus I or II).



Lutjanidae



Caesionidae

Key to the subfamilies of Branchiostegidae occurring in the area

- 1a. Predorsal ridge present (may be as an enlarged flap); body depth 21 to 36% (usually 27%) standard length; dorsal-fin elements (i.e. spines plus soft rays) 22 to 36; anal-fin elements 14 to 28; length of dorsal-fin base plus anal-fin base 80 to 109% (usually about 90%) standard length; body shape robust or quadriform **Branchiosteginae**
(a single genus, *Branchiostegus*, occurring in the area)
- 1b. No predorsal ridge; body depth 12 to 26% (usually 27%) standard length; dorsal-fin elements 22 to 64; anal-fin elements 14 to 56; length of dorsal-fin base plus anal-fin base 80 to 135% (usually over 90%) standard length; body elongate or fusiform **Malacanthinae**

Key to the species of Branchiostegus occurring in the area (as modified from Dooley and Kailola, 1988)

Remarks on key characters: the 16 species of *Branchiostegus* presently known (14 in the area) are often difficult to distinguish by single external characters except their living colour pattern. As their coloration does not preserve well, identification becomes more difficult with the specimen's age or preservation. Nevertheless, meristic data such as pored lateral-line scales and morphological characters such as head, body, and fin proportions and internal characters are useful for species identification.

- 1a. Pored lateral-line scales 67 to 72 (modally 70); dorsal fin with VII (rarely VI) spines and 15 soft rays; body with 18 or 19 dark tapered vertical bars; operculum, predorsal ridge, and area above pectoral-fin axil without dark pigment (Fig. 1) **Branchiostegus serratus**
(eastern Australia)
- 1b. Pored lateral-line scales 47 to 51; dorsal fin with VI spines and 16 (rarely 15) soft rays, or with VII spines and 15 (rarely 14) soft rays; body with 16 to 20 dark tapered vertical bars, light vertical bars, or no bars; operculum, predorsal ridge, with or without dark pigment → 2
- 2a. Body with 6 or 7 rows of dark spots, 1 per scale, between lateral line and pectoral-fin base (spots may be faint); a dark spot on each dorsal-fin membrane along base of dorsal fin; caudal-fin margin double emarginate; lower half of caudal fin grey with yellow spots, and usually with 2 thin yellow stripes in central part of caudal fin; anal fin pale with clear areas between soft rays (Fig. 2) **Branchiostegus sawakinensis**
(Red Sea, South Africa, Philippines, northern and northwestern Australia)
- 2b. Body without rows of dark spots; no dark spots along base of dorsal fin between each ray → 3

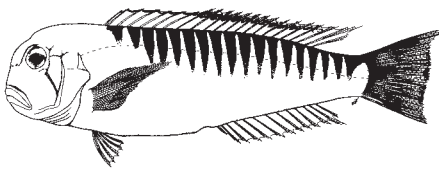


Fig. 1 *Branchiostegus serratus*

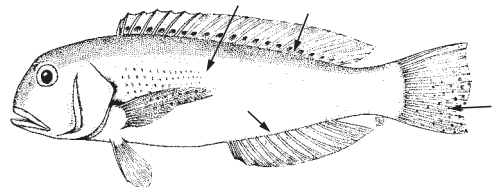


Fig. 2 *Branchiostegus sawakinensis*

- 3a. Jaws do not reach past a vertical line through anterior rim of orbit → 4
- 3b. Jaws reach beyond a vertical line through anterior rim of orbit → 6

4a. Preopercle indented above angle; predorsal ridge light coloured; caudal fin with numerous yellow spots, yellow rays, and light upper and lower margins; body whitish or silvery with some underlying pink; dorsal and anal fins clear with dark margin; broad white pelvic fins; no markings on cheek or snout (Fig. 3) ***Branchiostegus albus***
 (South Korea, Japan, East China Sea, Taiwan Province of China, South China Sea to Viet Nam)

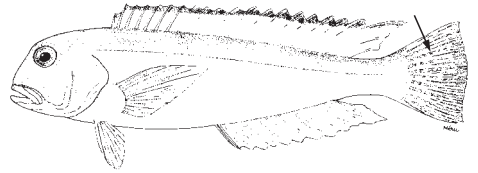


Fig. 3 *Branchiostegus albus*
(after Abe, 1965)

4b. Preopercle not indented above angle; predorsal ridge dark coloured; caudal fin with distinct yellow stripes and/or dark lower lobe and dark upper and lower margins; body light pink or silvery; dorsal fin clear (may have a yellow or black margin); anal fin clear; pelvic fins colourless and not broad; markings on cheek or snout may be present → 5

5a. Caudal-fin margin double emarginate, the fin with dark lower lobe and 2 central yellow stripes; 2 silvery or golden areas extending from suborbital rim to near upper jaw; snout top of head, and upper body red; sides and belly silvery white; a black upper margin along pectoral and soft dorsal fins; upper spinous dorsal-fin membrane with a thin yellow margin (Fig. 4) ***Branchiostegus australiensis***
 (known from 1 specimen collected in Shark Bay, Western Australia; not yet recorded from the area)

5b. Caudal-fin margin somewhat truncate, the fin with a dark lower lobe and a single central dark stripe, remainder of fin yellowish; suborbital and snout bright yellow, the snout with a triangular orange spot on lower medial portion; top of head and upper body dusky brown (in alcohol); sides and belly silvery; no black margin along upper pectoral or soft dorsal fins; spinous dorsal fin without yellow margin (Fig. 5) ***Branchiostegus ilocanus***
 [known only from Herre's (1928) description of a single specimen from the Philippines]

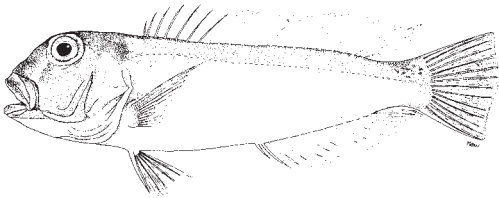


Fig. 4 *Branchiostegus australiensis*

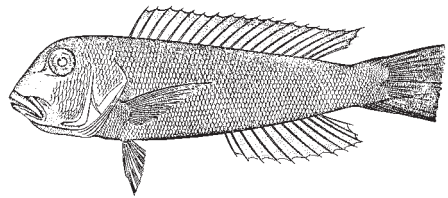


Fig. 5 *Branchiostegus ilocanus*
(from Herre, 1928)

6a. Distinct suborbital bars extending to near or over upper jaw → 7
 6b. No distinct suborbital markings extending to near or over upper jaw → 9

7a. A single narrow, pearly or silvery anterior suborbital bar extending to maxilla; head yellowish; dorsal fin may have small dark spot between first and second spines; upper dorsal-fin membrane yellow, narrowing posteriorly; base of dorsal-fin membrane also yellow; yellow dorsal-fin bands separated by narrow white streaks and central translucent areas; anal-fin membrane dusky with small white blotches along base between each ray; caudal fin double emarginate, its lower lobe dusky with several small yellow spots and 2 central yellow stripes; upper caudal-fin margin white near tip, with 3 or 4 radiating yellow stripes; upper margin of pectoral fins not dark; pelvic fins yellowish with white anterior margin; body reddish silver with no longitudinal stripes (Fig. 6) ***Branchiostegus auratus***

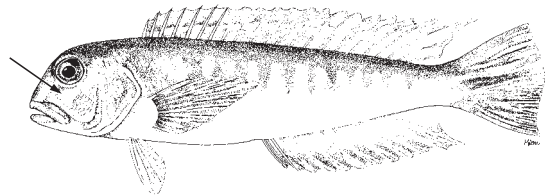


Fig. 6 *Branchiostegus auratus*
(after Abe, 1965)

(East China Sea, Japan, South Korea, Taiwan Province of China, South China Sea; not yet recorded from the area)

7b. Two or 3 silvery or white-coloured suborbital bars; remaining colour not as above → 8

8a. Three suborbital bars: a single pearl-coloured band extending from anterior suborbital to snout, a wider pearl-coloured bar extending from anterior suborbital to maxilla, a third silvery bar extending from posterior suborbital down scaled portion of cheek to branchiostegal membranes; snout bright pink; upper margin of spinous dorsal-fin membrane black; upper margin of soft dorsal-fin membrane yellow, the basal portion pearly; caudal fin subtruncate or somewhat double emarginate; 6 diagonal yellow stripes on upper two-thirds of caudal fin; body silvery pink with large dark spot above lateral line near upper opercular margin; predorsal ridge dark (Fig. 7) *Branchiostegus vittatus*

[known only from Herre's (1926) description of a single specimen from the Philippines]

8b. Two suborbital bars: parallel silvery bars extending from below the orbit and narrowing to over maxilla; head silvery; dorsal-fin membranes with a series of dark medial spots, becoming larger on soft-ray membranes, remaining membranes pink or clear; distal half of anal-fin membrane dusky, the proximal portion translucent (may have small elliptical white spots); caudal fin double emarginate, lower two-thirds dusky with 4 or 5 yellow longitudinal stripes; upper third of caudal fin pink with dark upper margin; upper margin of pectoral fins dark; pelvic fins translucent with white anterior margin; body pink with 2 dark stripes along entire length; predorsal ridge light coloured (Fig. 8) *Branchiostegus argentatus*
(East China Sea, Japan, South Korea, Taiwan Province of China, South China Sea, Nhatrang, Viet Nam)

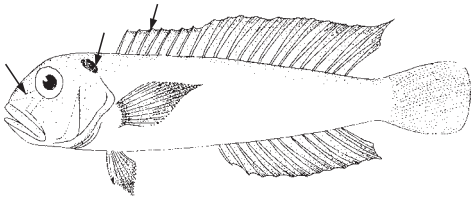


Fig. 7 *Branchiostegus vittatus*
(after Herre, 1926)

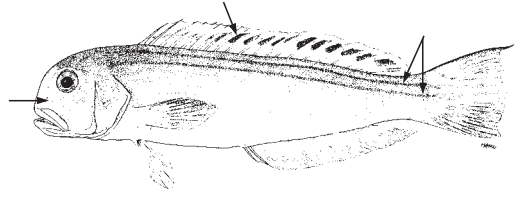


Fig. 8 *Branchiostegus argentatus*
(after Yoshino, 1984)

9a. Large triangular silvery marking from posterior orbital to midpreopercle; a silver triangular marking at upper opercular opening; upper body red with several irregular yellow markings near midbody; silvery iris usually with dark blotch along upper rim; caudal-fin membrane dusky, darker ventrally; 2 broad yellow parallel stripes in centre of caudal fin, with 5 or 6 yellow stripes on upper lobe; upper margin of caudal fin dark (reddish) (Fig. 9) *Branchiostegus japonicus*
(East China Sea, South Korea, Japan, South China Sea, Taiwan Province of China, South Viet Nam)

9b. No large silvery triangular marking on posterior orbital, nor at upper opercular opening; body without irregular yellow markings middorsally; no dark blotch along upper rim of iris; caudal-fin membrane light, dusky or dark ventrally; yellow stripes present or absent on caudal fin; upper margin of caudal fin light or dark → 10

10a. A dusky yellow area on dorsal-fin membrane between first and third spines; caudal fin yellow above, greenish grey below with 2 parallel yellow stripes in centre (Fig. 10) *Branchiostegus sp. A*
(Okinawa, Japan; not yet recorded from the area)

10b. No dusky yellow area on dorsal-fin membrane between first and third spines; caudal fin light above and light dusky or dark ventrally, yellow stripes present or absent → 11

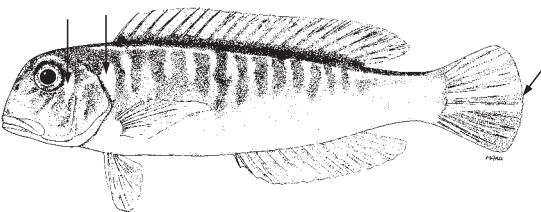


Fig. 9 *Branchiostegus japonicus*
(after Abe, 1965)

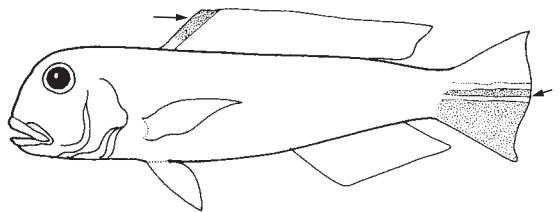


Fig. 10 *Branchiostegus sp. A*

- 11a.** Predorsal ridge and surrounding area light (pale yellowish); dorsal and anal fins high (13% and 12% standard length, respectively); faint vertical body bars; caudal fin more truncate, the lower margin slightly emarginate, the fin without medial yellow stripes, but with single grey stripe (Fig. 11) *Branchiostegus gloerfelti*
(eastern Indian Ocean: western central Sumatra; not yet recorded from the area)
- 11b.** Predorsal ridge entirely dark or dark with a pale medial seam; dorsal-fin height 9 to 11% standard length; anal-fin height 7 to 9% standard length; may have faint reddish body markings corresponding to underlying myomeres; caudal-fin margin double emarginate, the fin with 2 or more medial yellow stripes → 12
- 12a.** Caudal fin with black triangular patch on lower lobe, the lower margin light; upper caudal-fin lobe yellow with some grey, the upper margin dusky, central part of fin with 2 broad yellow stripes; body depth 23 to 26% (usually 25%) standard length; jaws extend to a vertical line drawn from posterior pupil rim; predorsal ridge dark (Fig. 12) *Branchiostegus wardi*
(eastern Australia, Gulf of Papua to southern Queensland, Sydney, and New Caledonia)
- 12b.** Caudal fin dusky, lacking black triangular patch on lower lobe, the lower margin dusky; upper caudal-fin lobe light with dusky upper margin; caudal fin with several light yellow radiating stripes corresponding to some of the rays; body depth 25 to 27% standard length; jaws extend to under anterior or middle of pupil; predorsal ridge pale with dark edges → 13

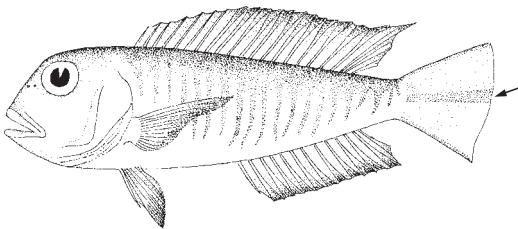


Fig. 11 *Branchiostegus gloerfelti*

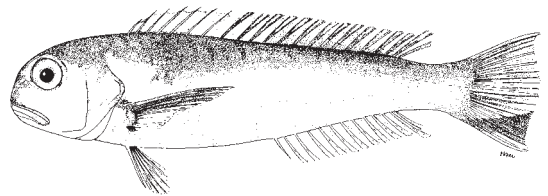


Fig. 12 *Branchiostegus wardi*

- 13a.** Interorbital space 22 to 24% head length; jaws extending posteriorly to midorbit; suborbital depth 21% head length; predorsal ridge low, pale centrally with dark edges; preopercular angle about 90° (Fig. 13) *Branchiostegus paxtoni*
(northwest of Port Hedland, Western Australia; not yet recorded from the area)
- 13b.** Interorbital space 28 to 29% head length; jaws extending posteriorly to under anterior edge of pupil; suborbital depth 19 to 21% head length; predorsal ridge very prominent and dark; preopercular angle about 110° (Fig. 14) *Branchiostegus hedlandensis*
(north of Port Hedland, Western Australia; not yet recorded from the area)

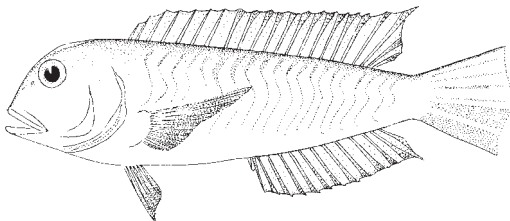


Fig. 13 *Branchiostegus paxtoni*

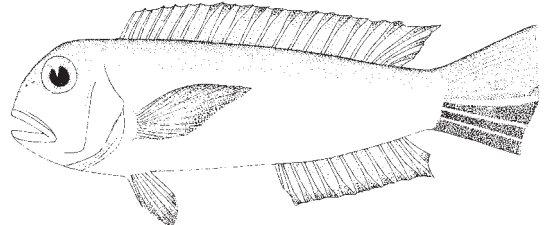


Fig. 14 *Branchiostegus hedlandensis*

Key to the genera of Malacanthinae occurring in the area

- 1a.** Body depth 12 to 20% standard length (usually 14 to 17%); head depth 49 to 64% head length; suborbital depth 5 to 20% head length; preopercle smooth (no serrae), no spine at angle; opercle with a single sharp spine; no predorsal ridge; dorsal fin with I to IV spines and 43 to 60 soft rays; a single anal-fin spine; length of dorsal-fin base plus anal-fin base 112 to 135% (usually 125%) standard length; total gill rakers on first gill arch 6 to 20 (usually 9 to 15); pored lateral-line scales 116 to 181; predorsal-fin supports in the formulae 0-0-1-, 0-1-, or 2-; first haemal spine fused only at tip and positioned over anal-fin rays 12 to 18; vertebrae 10+14; all inhabit burrows *Malacanthus*

1b. Body depth 15 to 29% standard length (usually 18 to 25%); head depth 57 to 86% head length; suborbital depth 3 to 7% head length; preopercle serrate, spine at angle (may be very reduced or prominent); opercle with sharp spine at angle; no predorsal ridge; dorsal fin with III to V (or VIII to X) spines and 13 to 34 soft rays; anal-fin spines I or II; length of dorsal-fin base and anal-fin base 80 to 100% (usually 90%) standard length; total gill rakers on first gill arch 16 to 28; pored lateral-line scales 89 to 140; predorsal-fin supports in the formula 0-0-2-; first haemal spine fused only at tip and positioned over second anal-fin ray; vertebrae 10 or 11+14; inhabit burrows except 2 known species (*H. fronticinctus* and *H. starcki* live in self-constructed mound of coral rubble) *Hoplolatilus*

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

(modified from Randall and Dooley, 1974, Klausewitz, et al., 1978, and Randall, 1981)

- 1a. Caudal fin emarginate or forked; vertebrae 10+14; total gill rakers on first gill arch 20 to 29; opercular spine smaller than pupil; width of maxilla less than diameter of pupil (subgenus *Hoplolatilus*) → 2
- 1b. Caudal fin truncate, not emarginate or forked, its upper lobe with elongate rays; vertebrae 11+14; total gill rakers on first gill arch 16 to 19; opercular spine larger than pupil; width of maxilla about equal to or greater than diameter of pupil (subgenus *Asymmetrurus*) → 7
(a single representative of this subgenus, *H. fourmanoiri*, occurring in the area)
- 2a. Dorsal fin with X spines and 13 soft rays; anal fin with II spines and 12 soft rays; lateral-line scales 89 to 97; an elongate projection of white skin along inner edge of clavicle under operculum near pectoral-fin base; posterior margin of preopercle with 18 or less serrae → 3
- 2b. Dorsal fin with III to IX spines and 18 to 34 soft rays; anal fin with I or II spines and 12 to 20 soft rays; lateral-line scales 85 to 140; without an elongate projection of white skin along inner edge of clavicle under operculum near pectoral-fin base; posterior margin of preopercle with 35 or more serrae → 4
- 3a. Lateral-line scales 85 to 92; 16 to 20 coarse preopercular serrae; a spine at preopercular angle, about 1/2 as large to nearly as large as opercular spine; total gill rakers on first gill arch 26 to 29; pectoral-fin rays 16 to 17; caudal fin deeply emarginate (forked); body olive-brown with blue (brown upon preservation) saddle-shaped spot on caudal peduncle; a broad blue area on side of cheek, chest, and abdomen; a narrow deep blue band across snout extending nearly to eyes; dorsal and anal fins yellowish with pink margins; spinous dorsal fin yellow; caudal fin mostly yellow, with faint thin medial white streak (Fig. 15) *Hoplolatilus fronticinctus*
(Mauritius; Madras, India; Luzon, Philippines; Palau Islands and Solomon Islands)
- 3b. Lateral-line scales 90 to 97; 14 to 16 coarse preopercular serrae; no enlarged spine at preopercular angle; total gill rakers on first gill arch 20 or 21; pectoral-fin rays 16; caudal fin forked; body salmon dorsally, white or bluish white ventrally; a yellow longitudinal stripe may appear on back along dorsal-fin base, extending to caudal peduncle; snout and upper head olive (may have some yellow); a yellow-orange bar from eye to mouth; cheek with 2 irregular (wavy) longitudinal blue bands separated by light yellow bands; dorsal and anal fins light yellow; pectoral fins pale, pelvic fins pale or light yellow; upper and lower caudal-fin lobes various colours (yellow, green, blue), the central area transparent; can undergo a very rapid (24 colours in 15 seconds) colour change when frightened (Fig. 16) *Hoplolatilus chlupaty*
(Philippines: Batangas, Luzon)

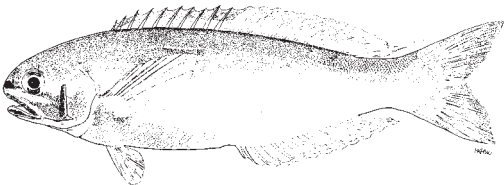


Fig. 15 *Hoplolatilus fronticinctus*

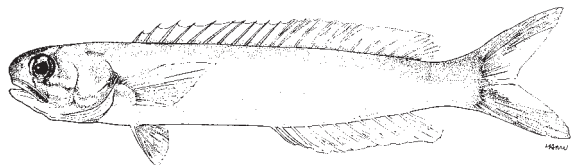


Fig. 16 *Hoplolatilus chlupaty*

- 4a.** Dorsal fin with III to V spines and 29 to 34 soft rays; anal fin with I spine and 19 or 20 soft rays; lateral-line scales 116 to 140; body depth 5.2 to 6.3 times in standard length; caudal fin forked; colour: body light olive-brown on back, fading to light yellow ventrally; a blue area on dorsal and postorbital area of head (fades upon death); dorsal-fin base coloured like upper body, remainder of fin bluish; caudal peduncle and upper and lower caudal-fin lobes bright yellow (Fig. 17) *Hoplostiltilus cuniculus*
 (widespread Indo-Pacific: Tahiti, western Pacific to western Indian Ocean)
- 4b.** Dorsal fin with VIII or IX spines and 18 to 23 soft rays; anal fin with I or II spines and 14 to 16 soft rays; lateral-line scales 95 to 121; body depth 3.8 to 5.5 times in standard length; caudal fin deeply emarginate to forked → 5
- 5a.** Dorsal fin with IX spines and 18 or 19 soft rays; anal fin with I spine and 15 or 16 soft rays; total gill rakers on first gill arch 20 to 24; lateral-line scales 105 to 121; body depth 5.3 to 5.5 times in standard length; caudal fin deeply emarginate; colour: head and nape blue; body mostly magenta fading to white on belly; dorsal portion of body and base of dorsal fin brilliant blue; remainder of dorsal fin reddish orange; anal fin light orange with a pale blue margin; upper and lower lobes of caudal fin deep magenta, central area blue fading to magenta posteriorly (Fig. 18) *Hoplostiltilus purpureus*
 (Guadalcanal, Solomon Islands, Philippines, and Indonesia)
- 5b.** Dorsal fin with VIII or IX spines and 16 to 23 soft rays; anal fin with I or II spines and 14 to 16 soft rays; total gill rakers on first gill arch 21 to 27; lateral-line scales 95 to 118; body depth 3.7 to 5.1 times in standard length; caudal fin emarginate to forked → 6



Fig. 17 *Hoplostiltilus cuniculus*

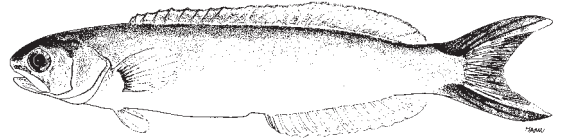


Fig. 18 *Hoplostiltilus purpureus*

- 6a.** Dorsal fin with IX spines and 16 soft rays; anal fin with I spine and 14 soft rays; total gill rakers on first gill arch 21 to 24; lateral-line scales 95 to 104; body depth 5 to 5.1 times in standard length; caudal fin emarginate; colour: an orange-red band from tip of snout to eye, arching dorsally to back then curving ventrally to middle of caudal peduncle, then broadening into a triangular area and becoming much darker (reddish black); head and body above band tan to red-brown, except on dorsal area of caudal peduncle where it is white; head and body below band white to pink-white; dorsal and anal fins white; dorsal with an red-orange margin, anal with a light blue margin; caudal fin white above and below with a dark triangle (Fig. 19) *Hoplostiltilus marcosi*
 (Luzon, Philippines, Guadalcanal and New Georgia, Solomon Islands)
- 6b.** Dorsal fin with VIII spines and 21 to 24 soft rays; anal fin with II spines and 15 or 16 soft rays; total gill rakers on first gill arch 22 to 27; lateral-line scales 100 to 118; body depth 3.7 to 4.6 times in standard length; caudal fin deeply forked; colour: body tan with a large bright blue area over head area from below upper eye to thorax past base of pectoral fins; dorsal and anal fins light yellow, the dorsal fin with some blue; caudal fin bright yellow except upper and lower and central posterior margins which are whitish; young completely blue (Fig. 20) *Hoplostiltilus starcki*
 (Mariana Islands, Caroline Islands, Palau Islands, Marshall Islands, and Tuamotu Archipelago)

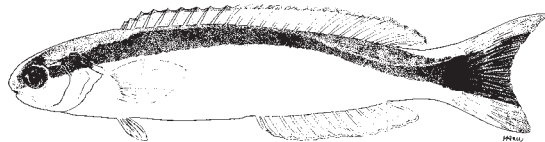


Fig. 19 *Hoplostiltilus marcosi*



Fig. 20 *Hoplostiltilus starcki*

7a. A prominent spine at preopercular angle, 1/2 or greater than length of opercular spine; dorsal fin with X spines and 21 to 23 soft rays; anal fin with II spines and 18 or 19 soft rays; total gill rakers on first gill arch 16 to 19; lateral-line scales 96 to 101; maxilla reaching a vertical at posterior rim of orbit; colour: body grey, darker dorsally; top of head violet-black; large irregular light (yellow) areas separated by dark areas; a large, nearly triangular black spot from caudal peduncle extending to near central caudal-fin margin (Fig. 21) *Hoplolatilus fourmanoiri*

(South Viet Nam, Guadalcanal, Solomon Islands, Philippines)

7b. A short broad-based spine at preopercular angle; dorsal fin with X spines and 22 soft rays; anal fin with II spines and 20 soft rays; total gill rakers on first gill arch 17; lateral-line scales 92; maxilla reaching beyond a vertical at posterior rim of orbit; an irregular dark stripe slightly above middle of side of body, ending at middle of caudal fin; an irregular row of dark spots on body above stripe (Fig. 22) *Hoplolatilus oreni*

(known only from the type specimen collected in the Red Sea; not yet recorded from the area)

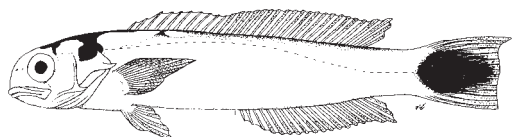


Fig. 21 *Hoplolatilus fourmanoiri*

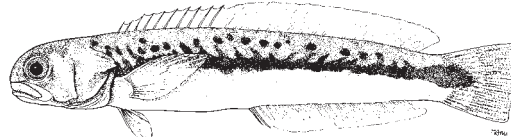


Fig. 22 *Hoplolatilus oreni*

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

1a. Dorsal-fin elements (i.e. spines plus soft rays) 53 to 65; total gill rakers on first gill arch 9 to 20 (modally 15); broad midbody longitudinal band from operculum to tip of caudal fin, widening on tail to include most of middle and lower portion, lower portion with a small white rectangular area (Fig. 23) *Malacanthus brevirostris*

1b. Dorsal-fin elements 46 to 51 (modally 49); total gill rakers on first gill arch 6 to 14; caudal fin with characteristic 2 dark parallel bands (Fig. 24) *Malacanthus latovittatus*

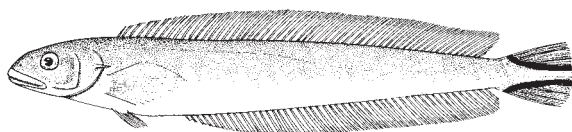


Fig. 23 *Malacanthus brevirostris*

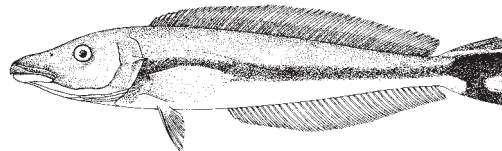





Fig. 24 *Malacanthus latovittatus*

List of species occurring in the area

The symbol  is given when species accounts are included. A question mark indicates that presence in the area is uncertain.

Subfamily BRANCHIOSTEGIDAE

-  *Branchiostegus albus* Dooley, 1978
-  *Branchiostegus argentatus* (Cuvier, 1830)
- ? *Branchiostegus auratus* (Kishinouye, 1907) ^{1/}
- ? *Branchiostegus australiensis* Dooley and Kailola, 1988 ^{2/}
- ? *Branchiostegus gloerfelti* Dooley and Kailola, 1988 ^{3/}
- ? *Branchiostegus hedlandensis* Dooley and Kailola, 1988 ^{4/}

1/ Marginal to the area: known from southern Japan and south coast of Korea to the East China Sea to Taiwan Province of China and possibly northern portions of the South China Sea. Maximum standard length 29 cm. Found living along with *B. japonicus*, *B. argentatus*, and *B. albus* within part of their ranges (East China Sea), although depth preferences may differ somewhat (*B. auratus* usually caught at greater depths, 225 to 290 m, but at 30 to 290 m off Taiwan Province of China).

2/ Not yet recorded from the area. Known only from the holotype, 26.6 cm standard length, collected southeast of Shark Bay (26°21'S, 112°35'E), Western Australia at a depth of 164 to 170 m. Potentially commercial food fish.

3/ Not yet recorded from the area. Known only from the holotype, 23.5 cm standard length, trawled off central Sumatra (about 00°22'S, 98°44'E). Might be expected elsewhere in Indonesia. A potentially commercial species.

4/ Not yet recorded from the area. Known only from Port Hedland (18°32'S, 118°17'E), Western Australia. Size range 22.5 to 26 cm standard length. Collected by bottom trawls at a depth of 200 to 204 m. A potentially commercial species.

- Branchiostegus ilocanus* Herre, 1928^{5/}
 ➤ *Branchiostegus japonicus* (Houttuyn, 1782)
 ? *Branchiostegus paxtoni* Dooley and Kailola, 1988^{6/}
 ➤ *Branchiostegus sawakinensis* Amirthalingam, 1969
 ➤ *Branchiostegus serratus* Dooley and Paxton, 1975
Branchiostegus vittatus Herre, 1926^{7/}
 ➤ *Branchiostegus wardi* Whitley, 1932
 ? *Branchiostegus* sp. A from Okinawa, sensu Yoshino and Hayashi

Subfamily MALACANTHINAE

- Hoplolatilus (Hoplolatilus) chlupatyi* Klauswitz, McCosker, Randall, and Zetzsche, 1978
Hoplolatilus (Hoplolatilus) cuniculus Randall and Dooley, 1974
Hoplolatilus (Asymmetrurus) fourmanoiri Smith, 1963
Hoplolatilus (Hoplolatilus) fronticinctus Günther, 1887
Hoplolatilus (Hoplolatilus) luteus Allen and Kuitert, 1989
Hoplolatilus (Hoplolatilus) marcosi Burgess, 1978
 ? *Hoplolatilus (Asymmetrurus) oreni* (Clark and Ben Tuvia, 1973)
Hoplolatilus (Hoplolatilus) purpureus Burgess, 1978
Hoplolatilus (Hoplolatilus) starcki Randall and Dooley, 1974
 ➤ *Malacanthus brevirostris* Guichenot, 1848
 ➤ *Malacanthus latovittatus* (Lacepède, 1802)

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- Yoshino, T., W. Hiramatsuu, O. Tabata, and Y. Hayashi. 1984. First record of the tilefish *Branchiostegus argentatus* (Cuvier) from Japanese waters, with a discussion on the validity of *B. auratus* (Kishinouye). *Galaxea*, 3:145-151.

5/ This species has not been verified after the original description by Herre (1928), based on a 27 cm specimen (original specimen lost) purchased from a market at Narvacan, Ilocos Sur Province (Luzon, Philippines). A recent (1995) examination of fishes from numerous Philippine markets failed to reveal any specimens of *Branchiostegus*.

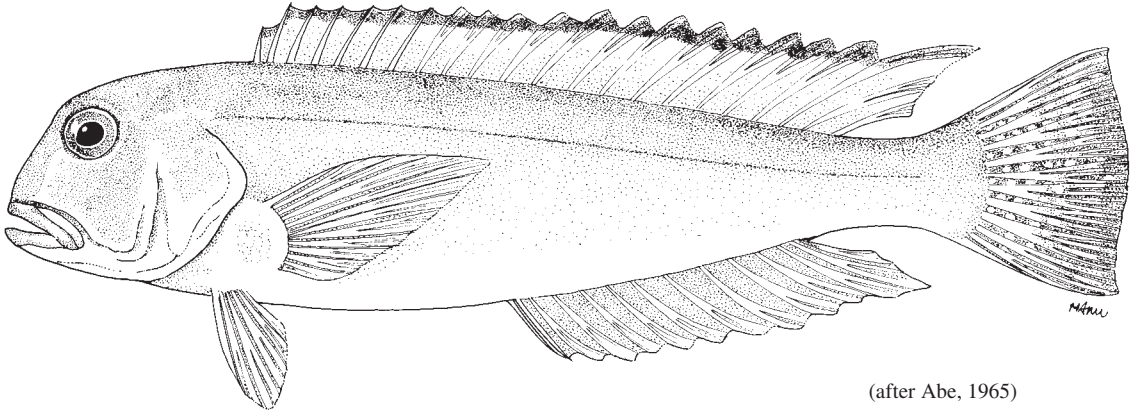
6/ Not yet recorded from the area. So far, known only from northwest of Port Hedland, Western Australia (19°01'S; 117°12'E). Size range 20.5 to 25.5 cm standard length. Caught in bottom trawls in depths of 200 to 202 m. Potential commercial food fish.

7/ This species has not been verified after the original description by Herre (1926), based on a single specimen, 24 cm standard length, collected from a Manila fish market (original specimen lost). A recent (1995) examination of fishes from numerous Philippine markets failed to reveal any specimens of *Branchiostegus*. Caudal-fin margin of this species may not be as rounded as drawn by Herre (see Fig. 7 in above key; figure redrawn from original).

Branchiostegus albus Dooley, 1978

Frequent synonyms / misidentifications: None / *Branchiostegus argentatus* (Cuvier, 1830); *B. japonicus* (Houttuyn, 1782).

FAO names: En - White tilefish; Sp - Blanquillo de blanco.



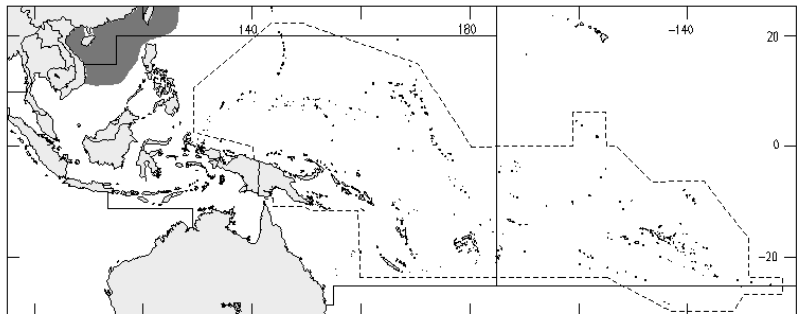
(after Abe, 1965)

Diagnostic characters: Preopercle finely serrated to its angle with a slight indentation above the angle is about 105°. Eye high on head and proportionately small, 20 to 24% head length. Posterior margin of jaw not quite or just reaching a vertical at anterior eye margin. Caudal fin double emarginate. Pelvic fins comparatively broad, with rounded posterior margin. First haemal spine characteristically very recurved. **Colour:** body without dark vertical bars; upper body silvery white with a pink hue (fresh specimens); belly white; snout yellow-pink, cheek with a broad silvery band from suborbit to upper jaw; dorsal-fin membrane translucent with some areas of white or pink; a dark band along margin of spinous dorsal fin; pectoral fins translucent; pelvic fins milky white with some overlying dusky tint; **predorsal ridge prominent and pale yellowish; caudal fin dusky, lower lobe not dark, the rays yellow at base, the membranes with small yellow spots, the dorsal and ventral edges mainly white.**

Size: Maximum standard length perhaps 60 cm; commonly between 20 and 40 cm standard length.

Habitat, biology, and fisheries: Found on muddy or sand bottom, usually associated with burrows; depths generally under 100 m. Caught by hook-and-line, bottom longlines, or trawls.

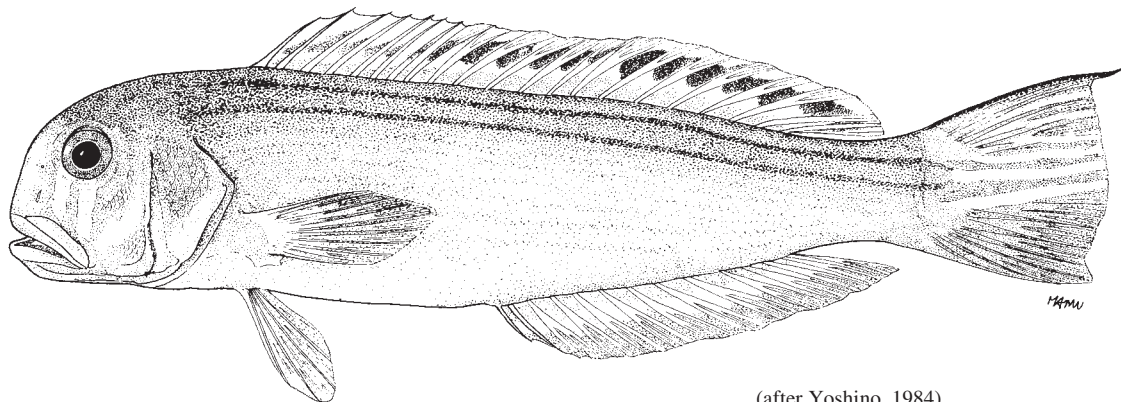
Distribution: From Japan (Honshu), North Korea (Pusan), East China Sea (including Shanghai and Taiwan Province of China), South China Sea (including Hong Kong and Macao) to Viet Nam.



Branchiostegus argentatus (Cuvier, 1830)

Frequent synonyms / misidentifications: None / *Branchiostegus japonicus* (Houttuyn, 1782); *B. albus* Dooley, 1978.

FAO names: En - Silver tilefish; Sp - Blanquillo de plata.



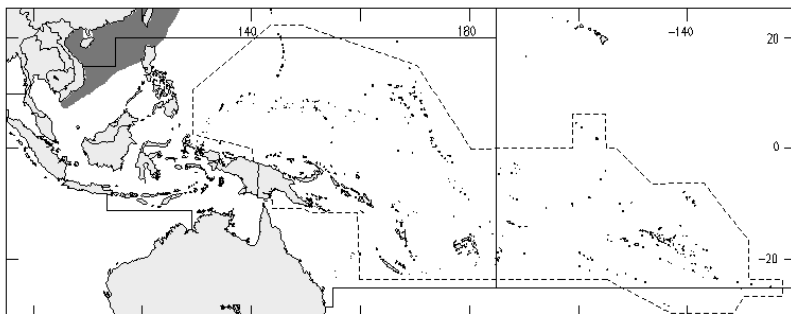
(after Yoshino, 1984)

Diagnostic characters: Body depth shallow, 22 to 25% (usually 24%) standard length; body width narrow, 10 to 12% standard length; predorsal length short, 28 to 31% (usually 30%) standard length. Preopercle finely serrate only to angle, no indentation at angle as in *Branchiostegus albus*, lower limb smooth; preopercular angle 85° to 95°. Suborbital shallow, 14 to 24% (usually 19%) head length (a character shared in the area only with *B. wardi*, suborbital 16 to 22% head length, usually 19%). Eye large, 25 to 36% (usually 30%) head length (proportionally largest among species of *Branchiostegus*). Jaws extend posteriorly to nearly under a vertical from posterior pupil. Dorsal fin comparatively low, 8% standard length. Caudal fin usually double emarginate. **Colour:** body dusky above lateral line, silvery below with a hint of yellow-orange stripes; belly white with a rose hue; numerous (2 or more prominent) longitudinal orange stripes on dorsal part of body, only faint ventrally; head with 2 prominent pearly silvery bands from suborbital to upper jaws; predorsal ridge dark; dorsal-fin membrane pink with a series of dark elliptical blotches dorsally (most prominent in rayed portion), disappearing before posterior edge; a series of faint yellow blotches basally along dorsal-fin membrane; anal fin whitish with a series of faint white spots basally, the distal half of fin dusky; caudal fin with dark leading upper edge, pink underneath, the lower portion dusky with 6 bright yellow stripes and several small spots below lowest stripe; upper edge of pectoral fins dark, and dusky below; pelvic fins white anteriorly, transparent posteriorly; much of the coloration lost upon preservation.

Size: Maximum standard length 25 cm.

Habitat, biology, and fisheries: Found benthically in relatively shallow depths (between 50 and 65 m). Caught by hook-and-line, bottom longlines, and trawls.

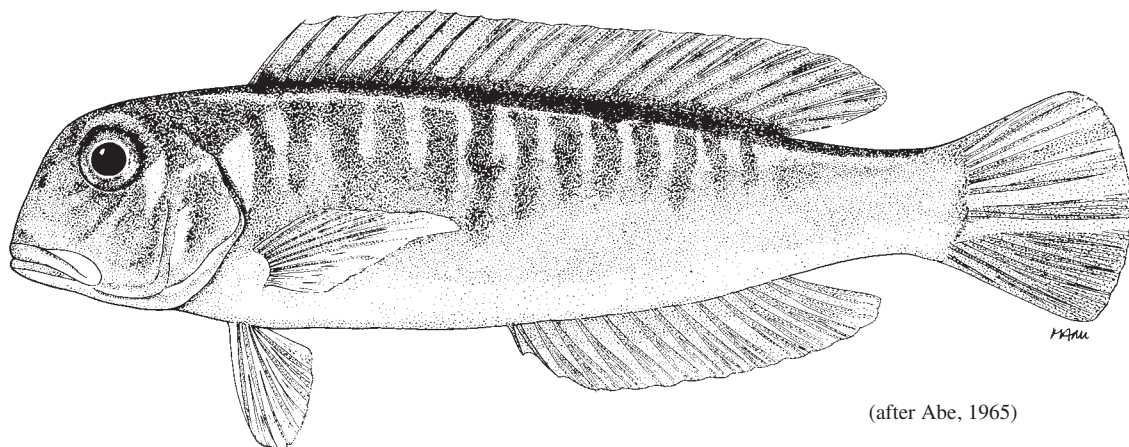
Distribution: Southern Japan to Viet Nam (Nhatrang), including Taiwan Province of China, East China Sea, coast of China, Hong Kong, and South China Sea.



Branchiostegus japonicus (Houttuyn, 1782)

Frequent synonyms / misidentifications: None / *Branchiostegus auratus* (Kishinouye, 1907); *B. argentatus* (Cuvier, 1830); *B. albus* Dooley, 1978.

FAO names: En - Red tilefish; Sp - Blanquillo de roja.



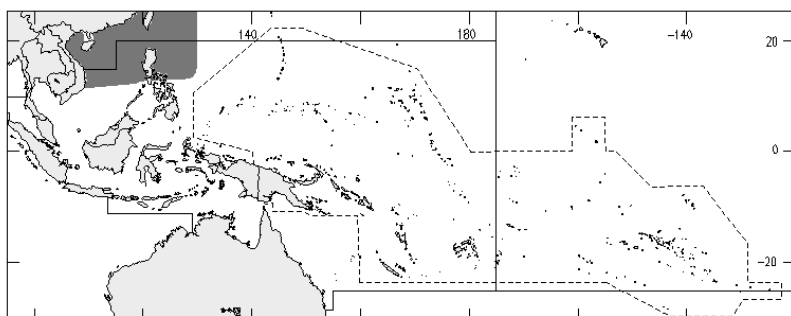
(after Abe, 1965)

Diagnostic characters: (Most meristic and morphometric data overlap other species of *Branchiostegus* in the area.) **Head large, 26 to 30% (usually 28%) standard length. Preopercle angle 90° to 95°, without notch above angle. Eye large, 28% head length.** Jaws slightly oblique, extending posteriorly to under anterior third of pupil. **Colour:** body pink-red with overlying golden tint and underlying faint yellowish blotches, several irregular light reddish blotches dorsally at midbody (appears as though mucus coating has been lost in that area revealing the underlying golden reddish coloration); predorsal ridge dark; head without suborbital silvery bars, but with characteristic large triangular postsuborbital silvery white area (may have another smaller triangular area at upper margin of operculum); caudal fin with 5 or 6 bright yellow stripes (2 prominent midcaudal stripes plus 3 or 4 smaller, fainter stripes dorsally on fin).

Size: Maximum recorded total length 37.8 cm; commonly between 20 and 33 cm standard length; maximum weight estimated to be 485 g (females) and 714 g (males), for an estimated age of 8 years.

Habitat, biology, and fisheries: Found associated with burrows on sandy-muddy, or shell-sand-mud bottoms in depths of 30 to 265 m; commonly caught at depths of 80 to 200 m in East China and Yellow seas. Bottom temperatures 8° to 18°C (winter) 14° to 22°C (autumn). Spawning peaks appear to be twice a year (July and October) in the East China Sea. Larvae appear in October off Sado Straits in Japan at depths of 0 to 50 m (19° to 21°C). Caught by bottom longlines and trawls. Catches have fluctuated from 500 t before 1956 to a peak of 12 460 t in 1970. Catches of the Red tilefish, although comprising 90% of all tilefish catches in the East China Sea, have declined since 1970, averaging about 6 000 t in recent years. The catch/effort in 1967 to 1980 declined from 9 to 4.4 fish per longline (1978 to 1980 catch per day averaged about 270 kg per 120 longlines, with 130 hooks/longline), indicating the need for fishery management at least for the male stock as males are generally larger, more voracious, and more easily caught. Marketed fresh, canned, and salted.

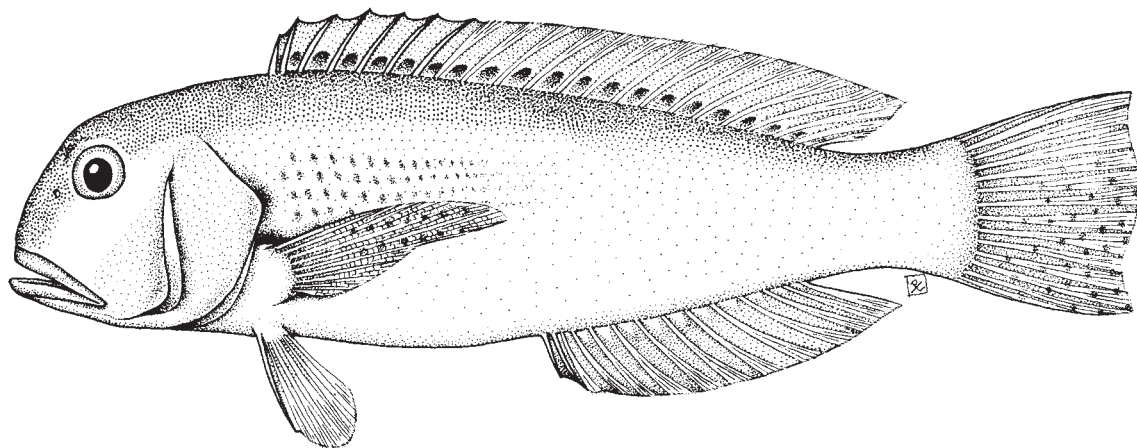
Distribution: Sea of Japan (central Honshu, Japan), portions of the East China Sea, South China Sea, and coast of China to South Viet Nam and waters around the Philippines. Previous records from South Africa are probably attributable to either *B. sawakinensis* or *B. doliatus*.



Branchiostegus sawakinensis Amirthalingam, 1969

Frequent synonyms / misidentifications: None / *Branchiostegus doliatus* (Cuvier, 1830); *B. japonicus* (Houttuyn, 1782).

FAO names: En - Freckled tilefish; Fr - Tile taches de son; Sp - Barko barko.

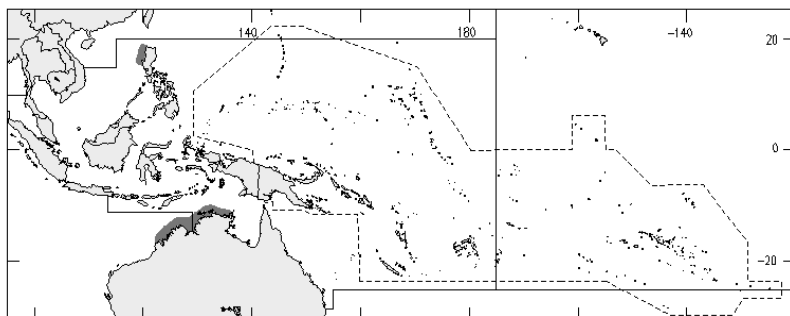


Diagnostic characters: Preopercle angle 95° to 100° . Jaws extending posteriorly to under middle of pupil. Dorsal-fin height low, about 7% standard length. Possesses (along with only *Branchiostegus wardi*) a unique arrangement of jaw muscles (adductor mandibulae complex) in having subdivisions of the $A_1\%_3$ (cf. figure of jaw muscles on family sheet). **Colour:** body with varied reddish and yellow pastel shades and 5 to 7 rows of dark spots from below lateral line to beneath pectoral fins; rose-violet around eye and silvery yellow below; predorsal ridge darkly pigmented; a golden area above opercle; dorsal fin with a small dark rectangular markings along its base; anal-fin membrane with small, silver-white triangles along its base; upper portion of caudal fin light with yellow rays, lower portion dark grey with 10 to 15 small yellow spots (noted on Philippine specimens).

Size: Maximum standard length 39 cm, commonly to 25 cm standard length; preserved weight 1 kg.

Habitat, biology, and fisheries: Found over muddy bottoms at 80 m in the Red Sea (called locally "shawra" or "theena" and regarded to be occasionally poisonous there), 45 m over sandy bottom from South Africa, and captured by trawls at 120 to 180 m over sandy bottom off the Philippines. Not common in the markets of Cebu City (Philippines). Probably inhabits burrows. Captures by hook-and-line, and by trawls. Marketed fresh or salted.

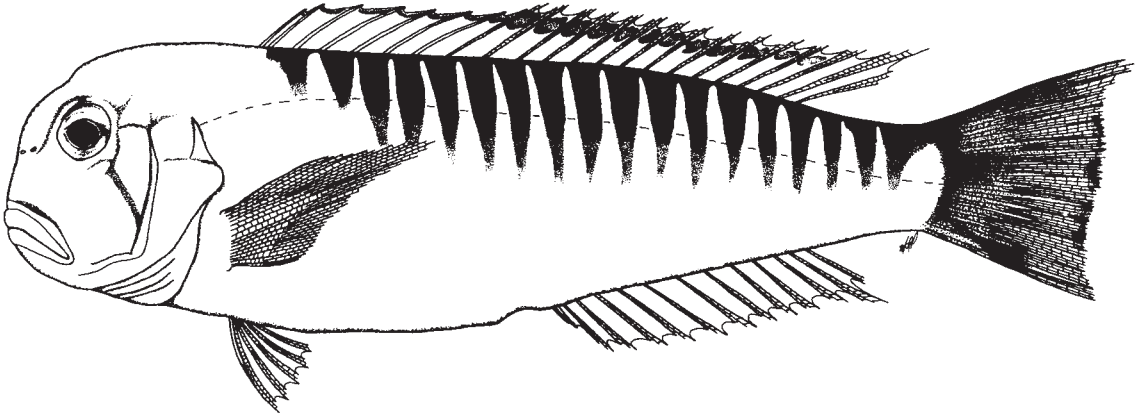
Distribution: Recent records from the Philippines and northwestern Australia. Also disjunctly known from the western Indian Ocean to South Africa, where it has been erroneously identified as *B. japonicus* or *B. doliatus*. May be widespread throughout the Indian Ocean and western Central Pacific.



Branchiostegus serratus Dooley and Paxton, 1975

Frequent synonyms / misidentifications: None / *Branchiostegus wardi* Whitley, 1932.

FAO names: En - Australian barred tilefish.

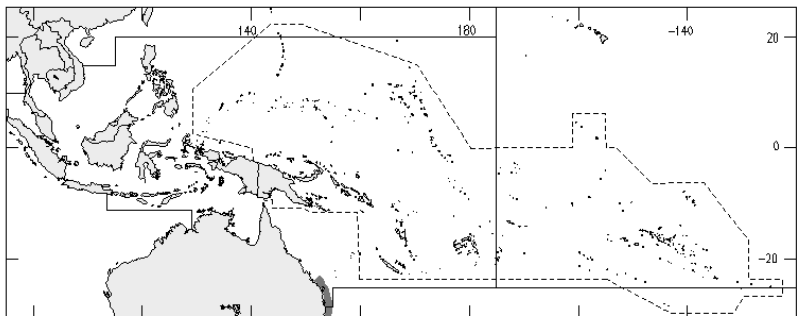


Diagnostic characters: Snout profile steep, nearly vertical. Jaws oblique reaching posteriorly to below centre of pupil. Total gill rakers on first gill arch 18 to 20. Caudal fin double emarginate. **Pored lateral-line scales 67 to 72 (highest among all species of *Branchiostegus*).** **Colour:** body silvery white with overlying yellow-orange and 18 or 19 dark violet tapering bars extending from back to below lateral line; no bars under orbit; predorsal ridge light yellow; snout yellow-orange; iris golden; cheeks silver-white with an oblique darker band on preopercle; spinous dorsal fin dusky with a narrow yellow upper margin; soft dorsal-fin membrane with a series of elliptical spots, fading posteriorly; anal-fin membrane translucent; pectoral fins opaque with an upper black edge (first 2 rays); pelvic fins translucent; caudal fin with wide central yellow area; dorsal, ventral, and posterior caudal-fin margins black.

Size: Maximum standard length 41 cm; commonly between 25 and 30 cm standard length.

Habitat, biology, and fisheries: Bottom-dwelling, well documented from depths of 110 to 150 m; maximum depth recorded 162 m. Shallower eastern Australian trawling surveys (60 to 110 m) conducted in the Australian area earlier, failed to catch any specimens of *B. serratus*. Often caught in the same trawl samples with *B. wardi* (another eastern Australian species not known until collected in 1928). Both species are now common in the Sydney fish markets. Stomach analysis revealed a wide variety of food items: fish remains, bivalves, gastropods, crabs, amphipods, stomatopods, and polychaete worms. Deviations of the expected 50/50 sex ratio suggest protogynous sex reversal (other explanations possible); specimens under 38 m standard length exhibit a 50/50 sex ratio, while larger specimens are generally males. Ovaries collected in June were filled with 0.2 to 0.9 mm ova. About 25 kg per day can be found in the Sydney market. Marketed fresh.

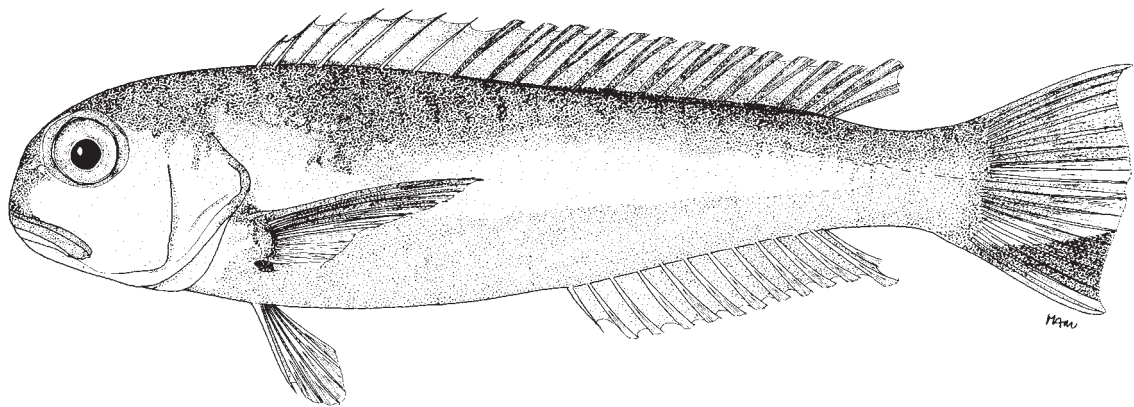
Distribution: Known from Cape Moreton (Queensland) and the coast of New South Wales (Australia) from Coff's Harbour 30°20'S, to Lake Illawarra 34°30'S.



Branchiostegus wardi Whitley, 1932

Frequent synonyms / misidentifications: None / *Branchiostegus serratus* Dooley and Paxton, 1975.

FAO names: En - Ward's tilefish.

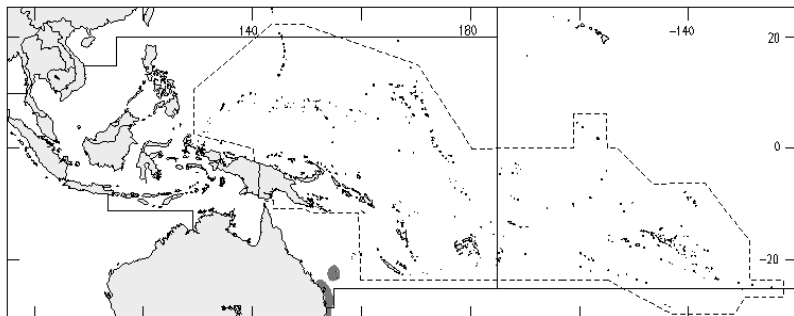


Diagnostic characters: Suborbital shallow, 16 to 22% (usually 19%) head length, a character in the area shared only with *Branchiostegus argentatus* (suborbital 14 to 24% head length, usually 19%). Snout blunt. Pored lateral-line scales 48 to 51 (unlike 67 to 72 in *B. serratus*); caudal fin double emarginate. **Colour:** body without vertical bars, dark brown dorsally, silver-white ventrally; snout purple; top of head dark; predorsal ridge dark; cheeks silver without suborbital bars; spinous membrane of dorsal fin light to dusky, with some yellow; soft dorsal-fin membrane dusky, without distinct markings; pectoral fins with dark dorsal margin, upper portion somewhat dusky, the lower clear; pelvic fins dusky; caudal fin with dark triangle on lower lobe, the dorsal and ventral edges yellow; 2 parallel medial yellow bands separated by medial dusky area, remainder of fin yellowish with some dusky areas.

Size: Maximum standard length 41 cm; commonly between 22 and 33 cm standard length.

Habitat, biology, and fisheries: Caught mainly by bottom trawls in depths of 90 to 110 m off southern Queensland and New South Wales; also caught at a depth of 250 m near the edge of a barrier reef off Nouméa, New Caledonia. Often caught in the same trawl with *B. serratus*. A benthic carnivore feeding on similar organisms as *B. serratus*. As with *B. serratus*, there is a disparity in the sex ratio in relation to size; specimens under 30 cm standard length were predominantly female, while those above 30 cm standard length were males. Either only males grow to larger sizes, or there may be protogynous sex reversal; no seasonal changes in ovaries were observed (perhaps indicating multiple spawning during the year). Marketed fresh in Sydney.

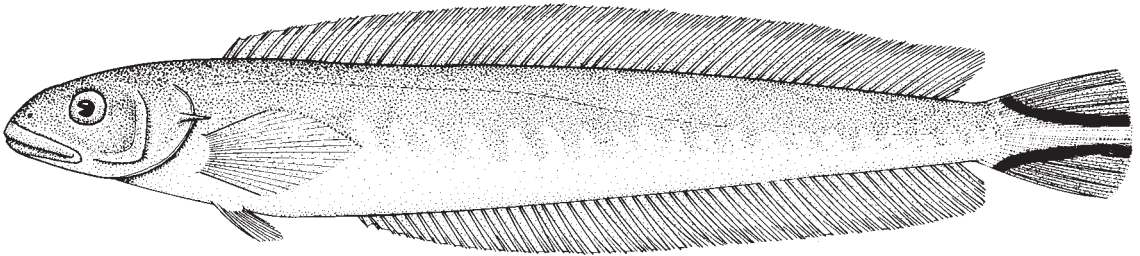
Distribution: Southern Queensland (26°25'S) to New South Wales (33°30'S); also known off New Caledonia.



Malacanthus brevirostris Guichenot, 1848

Frequent synonyms / misidentifications: *Malacanthus hoedtii* Bleeker, 1859; *M. parvipinnis* Vaillant and Sauvage, 1875; *Dikellorhynchus incredibilis*, Smith, 1956 (postlarvae) / *Malacanthus latovittatus* (Lacepède, 1802).

FAO names: En - Quakerfish; Sp - Blanquillo.

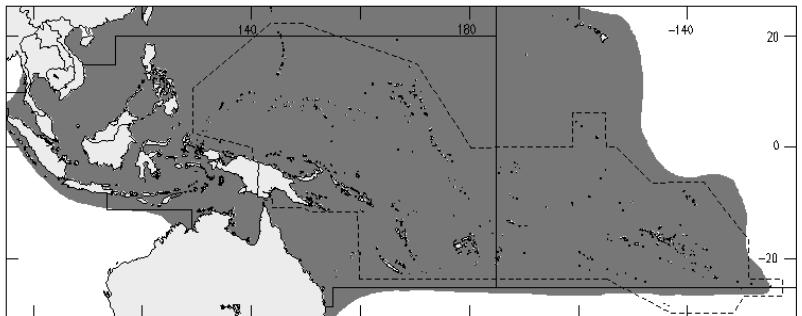


Diagnostic characters: Body elongate, its depth 12 to 16% (usually 14%) standard length. Preopercle edge smooth, angle 105°. **Opercle with a single sharp spine, size about equal to pupil diameter. Snout short, 29 to 37% (usually 32%) head length. Jaws extending posteriorly to anterior rim of orbit. Total gill rakers on first gill arch 9 to 20 (usually 15). Dorsal fin with I to V (usually II) spines and 52 to 60 (usually 57) soft rays. Anal fin with I spine and 46 to 55 (usually 51) soft rays. Caudal fin truncate to slightly rounded (upper lobe without elongate rays). Pored lateral-line scales 146 to 181. Colour: dorsal portions of body light olive green, belly silver-white; dorsal fin faint pink with a narrow yellow upper margin; upper and lower lobes of caudal fin yellow, separated by a central white band and with characteristic 2 dark parallel bands.**

Size: Maximum standard length 38.8 cm; commonly between 15 and 30 cm standard length.

Habitat, biology, and fisheries: Lives in self-constructed burrows in pairs at depths between 5 and 33 m. Commonly found in coral rubble or sandy bottom. When frightened, it dives into burrow head first. Caught mostly by spear, hook-and-line, and traps. Occasionally found in markets throughout the range. Marketed fresh or salted.

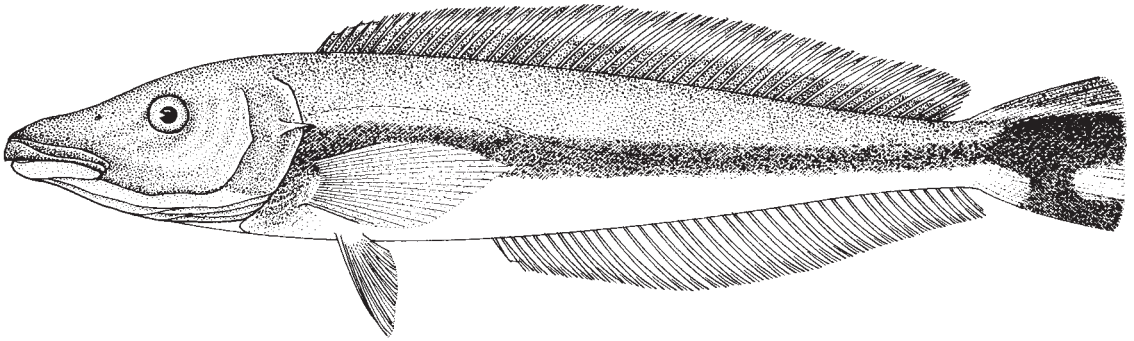
Distribution: Found throughout the Indo-Pacific, and westward to the eastern Pacific (Costa Rica, Panama, Columbia).



Malacanthus latovittatus (Lacepède, 1802)

Frequent synonyms / misidentifications: None / juveniles of *Labroides dimidiatus* Valenciennes, 1839 (family Labridae).

FAO names: En - Blue tilefish; Fr - Matajuel bleu; Sp - Matajuelo azul.



Diagnostic characters: Body elongate (somewhat deeper than in *Malacanthus brevisrostris*), its depth 15 to 20% (usually 17%) standard length. **Snout long**, its length 37 to 47% (usually 44%) head length. **Jaws extending posteriorly only to below anterior nostril, well in front of eye.** Preopercle edge smooth, the angle about 110° to 120°, opercle with a single sharp spine about equal in size to pupil diameter. Gill rakers on first gill arch reduced, their total number 6 to 14 (usually 9). **Dorsal fin with III or IV (usually IV) spines and 43 to 47 (usually 45) soft rays.** Anal fin with I spine and 37 to 40 (usually 39) soft rays; caudal fin truncate, with elongate elements in upper lobe. Pored lateral-line scales 116 to 132 (usually 124). **Colour:** head blue, iris yellow; body olive-grey to violet-blue above, bluish white on belly; **a broad midbody longitudinal band running from operculum to tip of caudal fin, widening on tail to include most of middle and lower portion; lower portion of fin with a small white rectangular area;** dorsal fin grey-brown with a pale band along upper margin; anal and pelvic fins white; pectoral fins bluish; juveniles with colour distinctly different from adult, closely resembling that of *Labroides dimidiatus*, a cleaner wrasse (family Labridae).

Size: Maximum standard length 38 cm; commonly to 35 cm standard length.

Habitat, biology, and fisheries: Lives in shallow waters (6 to 10 m), near edges of reefs. Inhabits self-constructed burrows of sand and rubble. Caught by hook-and-line, spears, and traps. Marketed fresh or salted.

Distribution: Throughout Indo-Pacific, but not known from Hawaii; extends as far north as Honshu (Japan), but not yet recorded from Australia in the south Pacific. Found in hyposaline waters of the Goldie River, New Guinea.

