

PLATYCEPHALIDAE

Flatheads

by L.W. Knapp

Diagnostic characters: Body elongate, head moderately to strongly depressed. Mouth large, **lower jaw longer than upper**. Eye partly directed upward; orbit diameter subequal to or less than snout length. Small villiform or caniniform teeth on jaws, vomer, and palatines in most; stout canines present in a few species. **Bony ridges of head usually bearing spines or serrations**. Branchiostegal rays 7. Gill rakers few, relatively short or mere stubs; gill membranes free from isthmus. **Two dorsal fins, well separated; spinous dorsal fin with VI to X spines, first spine short, isolated or scarcely connected to second spine**; second dorsal fin with 10 to 15 soft rays; anal fin with 10 to 15 soft rays (no spines). Pelvic fins thoracic in position, **behind pectoral-fin base, set far apart towards sides of body**, with I spine and 5 soft rays. Vertebrae 27, usually 11+16 or 12+15. Lateral line complete, number of pored scales varying from as few as 28 in *Onigocia* to more than 100 in *Elates*; most species with a small spine or ridge on first few anterior lateral-line scales, and in a few species all or most lateral-line scales bear a spine. **Colour:** usually dark above and pale below, the dark colours with various shades of brown, grey, or black; brighter hues of reddish, purplish, or greenish in some species.

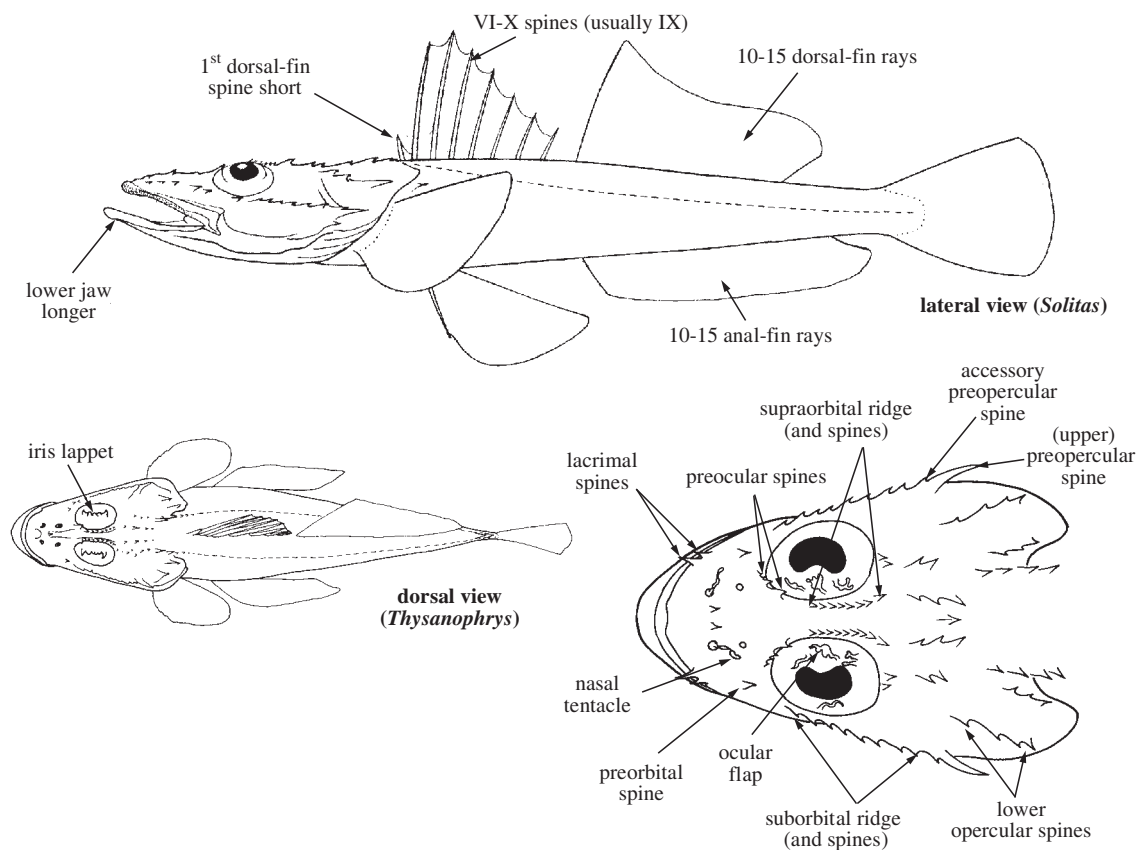


diagram of head spines used in the identification key and species accounts

(after Knapp in Smith and Heemstra, 1986)

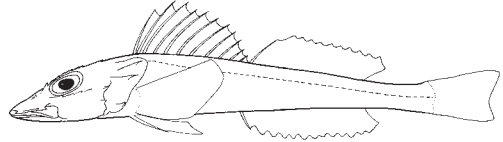
Habitat, biology, and fisheries: Benthic fishes frequently found on mud or sand bottoms of the continental shelf at depths to 300 m, most found at less than 100 m; a second group is associated with rocky shores or coral reefs. Many species are excellent eating, a few attain sizes of 70 cm or greater.

Similar families occurring in the area

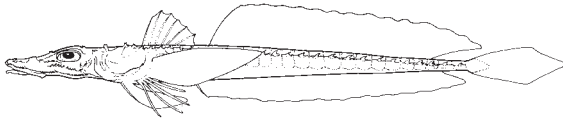
Bembridae: head less depressed; pelvic fins set close together; first dorsal-fin spine broadly attached to second spine.

Hoplichthyidae: superficially resemble platycephalids, but are mostly scaleless, with a row of large spiny scutes along the lateral line, and with 3 or 4 detached lower pectoral-fin rays.

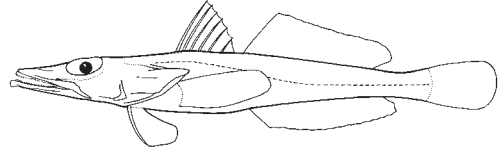
Percophidae: no bony ridges and spines on head; pelvic fins set close together, in advance of pectoral fins; first dorsal-fin spine broadly attached to second spine.



Bembridae



Hoplichthyidae



Percophidae

Identification note

Counts of dorsal-fin spines are presented as short formulas, with the first small, isolated spine counted separately (e.g. I,VIII). In a few species, the spiny dorsal fin is followed by a second small, isolated spine (e.g. I,VIII,I).

Key to the species of Platycephalidae occurring in the area

- 1a. A single, long preopercular spine; caudal fin forked, upper lobe longest, a single upper caudal-fin ray ending in elongate filament; dorsal-fin spines VI *Elates ransonnetii*
- 1b. Two or more preopercular spines; upper lobe of caudal fin not elongate, lacks elongate caudal-fin filament; dorsal-fin spines VII to X → 2

- 2a. Teeth on vomer in 1 transverse patch (Fig. 1a); 13 or more dorsal-fin rays; 2 preopercular spines, lower spine usually longest (*Platycephalus*) → 3



a)

- 2b. Teeth on vomer in 2 distinct patches (Fig. 1b); 12 or fewer dorsal-fin rays; 2 or more preopercular spines, upper spine longest → 5



b)

Fig. 1 teeth on vomer

- 3a. Caudal fin with 4 or more horizontal dark streaks, no yellow blotch; first gill arch with 3 or 4 gill rakers on upper limb, 10 to 12 on lower limb *Platycephalus arenarius*
- 3b. Caudal fin with 2 or 3 horizontal dark bars and a large yellow blotch; first gill arch with 1 to 3 gill rakers on upper limb, 6 to 10 on lower limb → 4
- 4a. First gill arch usually with 1 or 2 gill rakers on upper limb, 5 to 7 on lower limb; yellow blotch located towards central area of caudal fin *Platycephalus indicus*
- 4b. First gill arch usually with 1 to 3 gill rakers on upper limb, 7 to 10 on lower limb; yellow blotch located along upper margin of caudal fin *Platycephalus endrachtensis*

5a. Pored lateral-line scales 28 to 42; side of head unicarinate (lower edge of suborbital turned inward, not visible) (Fig. 2) (*Onigocia*) → 6

5b. Pored lateral-line scales 48 to 56 → 8

6a. Upper surface of eye without ocular flap; first gill arch without gill rakers on upper limb and 4 or 5 gill rakers on lower limb; lateral-line scales 29 to 33 *Onigocia pedimacula*

6b. Upper surface of eye bearing ocular flap (Fig. 2); first gill arch with 1 gill raker on upper limb, and 4 or 5 on lower limb; lateral-line scales 34 to 42 → 7

7a. A single preocular spine; suborbital ridge with a smooth notch below eye; antorbital margin of lacrimal bone with 2 antrorse (forward directed) spines *Onigocia macrolepis*

7b. Three or more preocular spines; suborbital ridge lacks notch; antorbital margin with 3 antrorse spines *Onigocia spinosa*

8a. All lateral-line scales bearing a stout spine (*Grammoplites*) → 9

8b. Lateral-line scales lack spines on posterior part of body → 10

9a. Interorbital width 9 to 13.1% of head length; lateral-line scale spines strong, extending beyond rear margin of scale on posterior part of body *Grammoplites scaber*

9b. Interorbital width 6.4 to 8.4% of head length; lateral-line scale spines weak, not reaching beyond rear margin of scale on posterior part of body *Grammoplites knappi*

10a. Diagonal scale rows slanting downward and backward above lateral-line usually exceed number of lateral-line scales by 5 or more (about equal in *Cymbacephalus beauforti* but pit present behind eye and rear edge of maxilla ends well in front of eye) → 11

10b. Diagonal scale rows slanting downward and backward above lateral line about equal to number of lateral-line scales, usually differing by only 1 or 2 scales → 17

11a. Upper preopercular-spine length approximately equal to second, no accessory spine on base; iris lappet of eye cirrose (Fig. 3a) (*Cymbacephalus*) → 12

11b. Upper preopercular-spine distinctly longer than second, accessory spine on base; iris lappet simple or bilobed (Fig. 3b, c) → 15

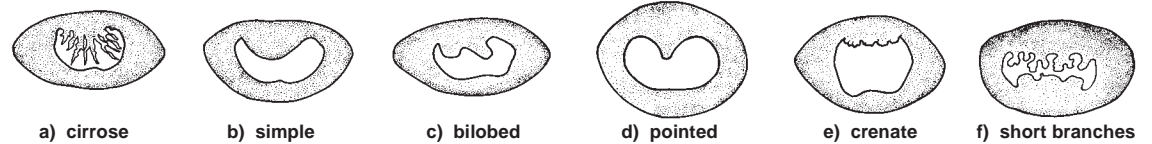


Fig. 3 various types of iris lappets

12a. No pit behind eye; soft dorsal- and anal-fin rays 12; caudal fin with a black streak along upper and lower edge *Cymbacephalus bosschei*

12b. A pit located behind upper rear edge of eye; soft dorsal- and anal-fin rays 11; caudal fin with a mottled pattern of dark blotches and light streaks. → 13

13a. Rear edge of maxilla ends well in front of eye; a series of papillae and cirri on upper surface of eye; number of oblique scale rows slanting backward above lateral line approximates number of pored lateral-line scales *Cymbacephalus beauforti*

13b. Rear edge of maxilla located below or behind front of eye; number of oblique scale rows usually exceeds number of pored lateral-line scales by 5 or more scales → 14

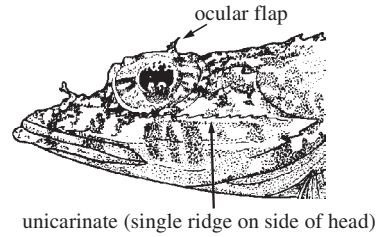


Fig. 2 lateral view of head

- 14a. Upper surface of eye with several cirri and papillae; suborbital ridge with a single spine; short dark streaks crossing fin rays in dorsal and caudal fins . . . *Cymbacephalus nematophthalmus*
- 14b. Upper surface of eye lacks cirri and papillae; suborbital ridge with 2 spines; no dark streaks crossing fin rays *Cymbacephalus staigeri*

- 15a. Caniniform jaw teeth are depressible; suborbital ridge bearing 3 or more spines below eye; iris lappet pointed (Fig. 3d) *Ratabulus diversidans*
- 15b. Jaw teeth not depressible; suborbital ridge bearing 2 spines under eye; iris lappet simple or slightly bilobed (Fig. 3b, c) (*Cociella*) → 16

- 16a. Suborbital ridge with 2 spines below eye, several spines behind eye; upper preopercular spine long, reaching nearly to opercular margin; preorbital spine slight or lacking . . . *Cociella hutchinsi*
- 16b. Suborbital ridge with 2 spines below eye, no spines behind eye; upper preopercular spine shorter, reaching about half-way to opercular margin; preorbital spine usually well developed *Cociella punctata*

- 17a. Second dorsal-fin spine much shorter than third; pectoral fins with falcate rear margin, black with pale central area; scale pores of lateral line with a single opening to outside (Fig. 4a) *Kumococius rodericensis*
- 17b. Second dorsal-fin spine length about equal to third; pectoral-fin margin not falcate, colour pattern not as above; scale pores of lateral line with 2 openings to exterior (Fig. 4b) → 18

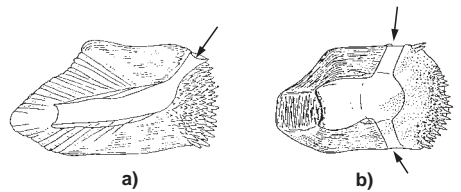


Fig. 4 detail of lateral-line scale

- 18a. Bony ridges of head bearing many fine serrations; side of head beneath eye unicarinate (lower edge of suborbital turned inward, not readily visible) (Fig. 5a); iris lappet bilobed (Fig. 3c) (*Rogadius*) → 19
- 18b. Bony ridges of head bearing some larger spines; side of head beneath eye bicarinate (lower edge of suborbital more vertically positioned, visible on side of head) (Fig. 5b); iris lappet with crenate or short branches (Fig. 3e, f) → 22

- 19a. No antrorse preopercular spine; soft dorsal-fin rays usually 12; caudal fin whitish, usually with 3 horizontal dark bars *Rogadius patriciae*
- 19b. Antrorse spine (Fig. 5a) projecting from lower preopercle (barely visible in some); soft dorsal-fin rays usually 11; caudal fin with 1 or more vertical dark bands → 20

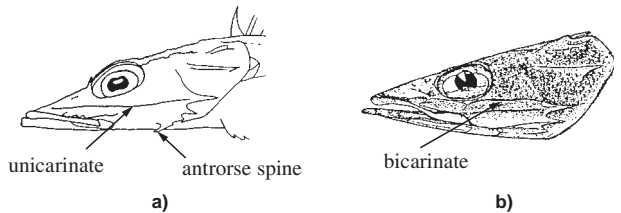


Fig. 5 lateral view of head

- 20a. Preocular spine with small accessory spine(s) along anterior base; usually 9 (8 to 10) scale rows between soft dorsal fin and lateral line *Rogadius serratus*
- 20b. Preocular spine(s) lack basal accessory spines; usually 6 or 7 (5 to 7) scale rows between soft dorsal fin and lateral line → 21

- 21a. A single preocular spine; antrorse preopercular spine stout, easily visible; caudal fin with a broad dark subterminal band *Rogadius pristiger*
- 21b. Two or more preocular spines; antrorse preopercular spine slight, only tip visible; caudal fin with several narrow dark bands *Rogadius welanderi*

- 22a. Preocular spines 2 to 6; preopercular spines 4 or more; posterior edge of breast scales elongated to a slight point; iris lappet crenate (Fig. 3e) *Sorsogona tuberculata*
- 22b. Preocular spines usually 1 (may have a cluster of smaller spines around base, *Ambiserrula jugosa*); preopercular spines 3 or less; breast scales normal, without posterior elongation → 23
- 23a. Upper preopercular spine bayonet-like, reaching to or past opercular margin; total gill rakers on first gill arch usually 8 or more (rarely 7) *Suggrundus macracanthus*
- 23b. Upper preopercular spine shorter, not reaching opercular margin; gill rakers on first gill arch usually 7 or less (rarely 8) → 24
- 24a. Upper 2 preopercular spines short, subequal; base of lower opercular spine extends across opercle as a bony ridge; iris lappet cirrose (Fig. 3a) (*Inegocia, Ambiserrula*) → 25
- 24b. Upper preopercular spine distinctly longer than next spine; base of lower opercular spine concealed by scales; iris lappet crenate or with short branches (Fig. 3e, f) . . . (*Thysanophrys*) → 27^{1/}
- 25a. Preocular spines 1 or 2, with several smaller spines around anterior and distal base; suborbital ridge with many small spines under entire length of eye; base of lower opercular spine bearing serrations *Inegocia jugosa*
- 25b. A single stout preocular spine, no spines around base; suborbital ridge lacking spines under front of eye; base of lower opercular spine smooth → 26
- 26a. Soft dorsal- and anal-fin rays usually 12, rarely 11; pectoral-fin rays 18 to 21 (usually 20); interopercular flap present (Fig. 6) *Inegocia japonica*
- 26b. Soft dorsal- and anal-fin rays usually 11; pectoral-fin rays 22 to 25 (usually 23 or 24); interopercular flap lacking. *Inegocia harrisii*
- 27a. One or more dermal papillae present on upper surface of eye; greatest diameter of eye about equal to snout length → 28
- 27b. No papillae on eye; greatest diameter of eye 1.3 or more times in snout length → 30
- 28a. A row of small papilla on upper eye, 1 or 2 elongate; 7 to 10 scale rows between soft dorsal-fin base and lateral line; iris lappet crenate (Fig. 3e) *Thysanophrys carbunculus*
- 28b. A single papilla on upper eye (minute in *Thysanophrys armatus*); 4 or 5 scale rows between soft dorsal-fin base and lateral line → 29
- 29a. Soft dorsal-fin rays 12; anal-fin rays 13; 2 or more preorbital spines *Thysanophrys celebicus*
- 29b. Soft dorsal-fin rays 11; anal-fin rays 12; 1 preorbital spine *Thysanophrys armatus*
- 30a. Rear edge of maxilla in front of anterior margin of orbit; least interorbital width 3.8 to 7.2 times in greatest diameter of orbit *Thysanophrys chiltonae*
- 30b. Rear edge of maxilla behind front margin of orbit; least interorbital width 1.5 to 3.5 times in orbit → 31
- 31a. Soft dorsal-fin rays usually 11; lips with a row of small fleshy papillae *Thysanophrys otaitensis*
- 31b. Soft dorsal-fin rays usually 12; lips smooth, without papillae *Thysanophrys arenicola*

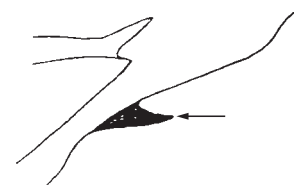




















Fig. 6 interopercular flap

^{1/} The classification used for this field guide does not follow Imamura (1996), who restricted *Thysanophrys* to include *T. celebica*, *T. chiltonae*, *T. armata*, and 2 species not found in the area. His new genus *Eurycephalus* includes the WCP species *E. arenicola* and *E. otaitensis*, as well as *E. carbunculus* from outside the area.

List of species occurring in the area

The symbol  is given when species accounts are included.

-  *Ambiserrula jugosa* (McCulloch, 1914)
-  *Cociella hutchinsi* Knapp, 1996
-  *Cociella punctata* (Cuvier in Cuvier and Valenciennes, 1829)
-  *Cymbacephalus beauforti* (Knapp, 1973)
-  *Cymbacephalus bosschei* (Bleeker, 1860)
-  *Cymbacephalus nematophthalmus* (Günther, 1860)
-  *Cymbacephalus staigeri* (Castelnau, 1875)
-  *Elates ransonnetii* (Steindachner, 1877)
-  *Grammoplites knappi* Imamura and Amaoka, 1994
-  *Grammoplites scaber* (Linnaeus, 1758)
-  *Inegocia harrisii* (McCulloch, 1914)
-  *Inegocia japonica* (Tilesius, 1812)
-  *Kumococius rodericensis* (Cuvier in Cuvier and Valenciennes, 1829)
-  *Onigocia macrolepis* (Bleeker, 1854)
-  *Onigocia pedimacula* (Regan, 1908)
-  *Onigocia spinosa* (Temminck and Schlegel, 1843)
-  *Platycephalus arenarius* Ramsy and Ogilby, 1886
-  *Platycephalus endrachtensis* Quoy and Gaimard, 1825
-  *Platycephalus fuscus* Cuvier in Cuvier and Valenciennes, 1829^{2/}
-  *Platycephalus indicus* (Linnaeus, 1758)
-  *Ratabulus diversidans* (McCulloch, 1914)
-  *Rogadius patriciae* Knapp, 1987
-  *Rogadius pristiger* (Cuvier in Cuvier and Valenciennes, 1829)
-  *Rogadius serratus* (Cuvier in Cuvier and Valenciennes, 1829)
-  *Rogadius welanderi* (Schultz, 1966)
-  *Sorsogona tuberculata* (Cuvier in Cuvier and Valenciennes, 1829)
-  *Suggrundus macracanthus* (Bleeker, 1869)
-  *Thysanophrys arenicola* Schultz, 1966
-  *Thysanophrys armatus* (Fowler, 1938)
-  *Thysanophrys carbunculus* (Valenciennes in Cuvier and Valenciennes, 1833)
-  *Thysanophrys celebicus* (Bleeker, 1854)
-  *Thysanophrys chiltonae* Schultz, 1966
-  *Thysanophrys otaitensis* (Parkinson in Cuvier and Valenciennes, 1829)

References

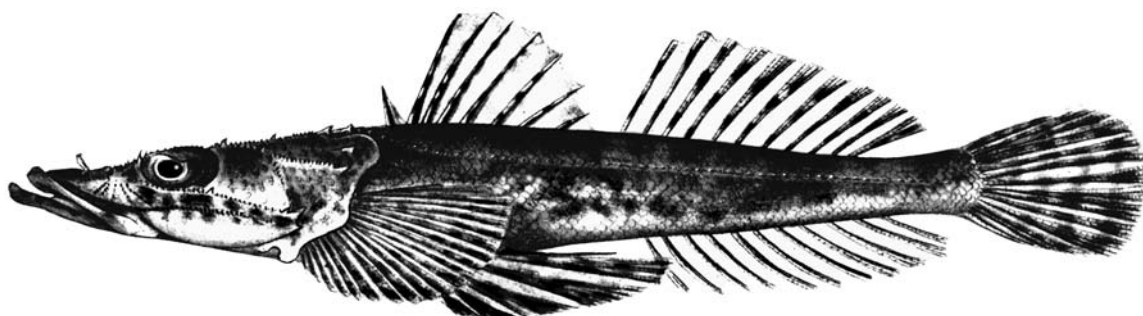
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- Imamura, H. 1996. Phylogeny of the family Platycephalidae and related taxa (Pisces: Scorpaeniformes). *Species Diversity*, 1(2):123-233.
- Myers, R.F. 1989. *Micronesian reef fishes*. Guam, Coral Graphics, 298 p.
- Sainsbury, K.J., P.J. Kailola, and G.G. Leyland. 1985. *Continental shelf fishes of northern and north-western Australia*. Canberra, Glouston and Hall and Peter Pownall Fisheries Information Service, 375 p.

^{2/} Not included in the identification key. The dusky flathead, *Platycephalus fuscus*, commonly occurs in southeastern Australia and only enters the area from Brisbane to near Mackay, Queensland. It usually has 14 soft rays both in the second dorsal fin and anal fin, which distinguishes it from the other 3 species of *Platycephalus* treated here. Its caudal fin is dusky with some dark spots in the upper lobe; horizontal dark bars are never present.

Ambiserrula jugosa (McCulloch, 1914)

Frequent synonyms / misidentifications: None / None.

FAO names: En - Mud flathead.



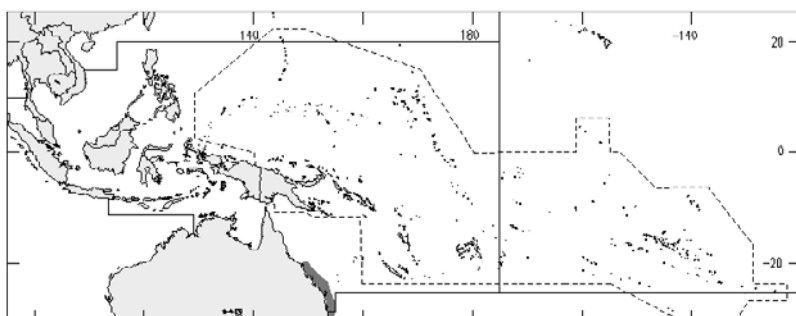
(from McCulloch, 1914)

Diagnostic characters: Body elongate, head moderately depressed. Rear edge of maxilla reaches to slightly behind front edge of eye. Preopercular spines usually 3, **upper spine short, subequal with next**; small accessory spine present. **Supraorbital ridge serrate, with a cluster of small spines posteriorly.** A series of small preorbital spines present; **preocular spines often clustered, with 1 larger spine and several smaller spines around its base**; **suborbital ridge with numerous small serrations.** Teeth on vomer in 2 separate patches. Lower side of head bicarinate. Iris lappet cirrose. **Interopercular flap truncated, tongue-shaped.** Total gill-rakers on first gill arch 6. Dorsal-fin spines IX or I,VIII; dorsal-fin rays 11 or 12 (usually 11); anal-fin rays 11 or 12 (usually 11); **pectoral-fin rays 21 or 22.** Oblique scale rows slanting downward above lateral line about equal to number of lateral-line scales. Lateral-line scales 52 to 55 (usually 52 or 53), anterior 10 to 25 (mean 16.7) scales bearing a small spine or ridge. Scale pores of lateral line with 2 openings to the exterior. **Colour:** head and body brown or grey above, pale below; 4 or 5 dark blotches on cheek including a broad dark bar below eye, lips also with dark blotches; back crossed by about 4 dark bands; lower side with dark blotches and streaks; spinous dorsal fin with a submarginal dark band, spines with dark spots; anal fin pale anteriorly, rear portion dusky; other fins with a series of brown spots, forming vertical bands in caudal fin.

Size: Maximum total length about 21 cm, commonly to 15 cm.

Habitat, biology, and fisheries: Found in shallow coastal waters, taken by trawls up to about 20 m.

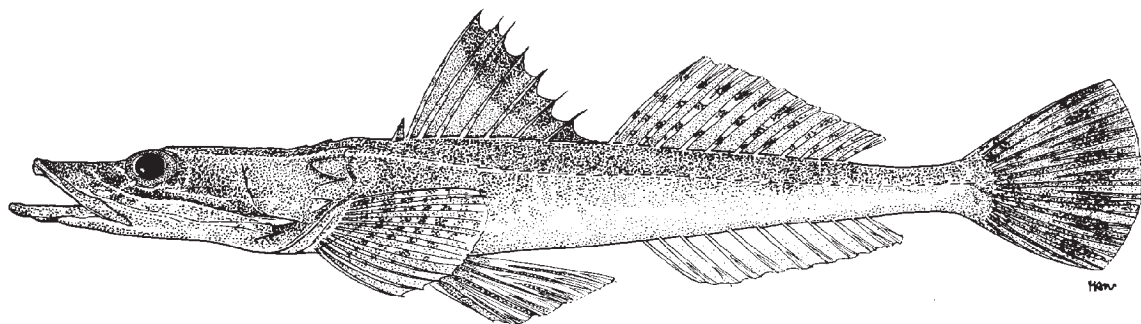
Distribution: East coast of Australia from Botany Bay (New South Wales) to vicinity of Bowsen (Queensland).



Cociella hutchinsi Knapp, 1996

Frequent synonyms / misidentifications: *Suggrundus* sp. 1 [Sainsbury, Kailola, and Leyland, 1985] / None.

FAO names: En - Brownmargined flathead.



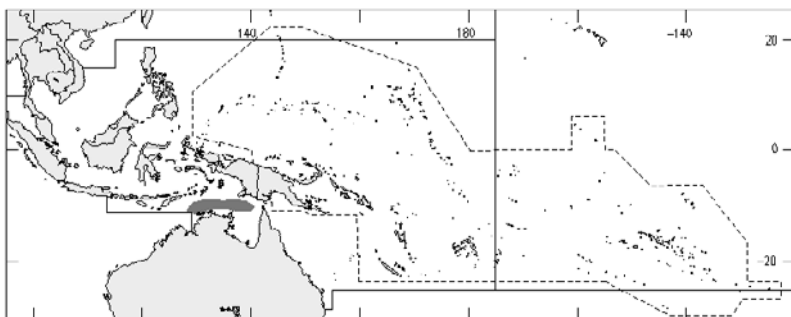
(after Sainsbury, Kailola, and Leyland, 1985)

Diagnostic characters: Body elongate, head moderately depressed. Rear edge of maxilla reaches behind front edge of eye. Preopercular spines usually 2 (a weak third spine sometimes present), **upper preopercular spine long, nearly reaching to rear margin of opercle. Preorbital spine slight, often lacking. Supraorbital ridge usually smooth over anterior quarter of eye**, bearing 7 to 10 small spines posteriorly. Suborbital ridge bearing 2 spines below eye, and **3 or 4 spines behind eye**. Teeth on vomer in 2 separate patches. Lower side of head bicarinate. **Interopercular flap absent. Iris lappet simple, semicircular.** Total gill rakers on first gill arch 6 or 7 (usually 6). Dorsal-fin spines I,VII or I,VIII (usually I,VIII); dorsal-fin rays 11 or 12 (usually 11); anal-fin rays 11; pectoral-fin rays 20 to 23 (usually 21 or 22). Oblique scale rows slanting backward above lateral line 59 to 68 (mean 63). Lateral-line scales 51 to 55, anteriormost 2 to 8 scales bearing weak spines. Scale pores of lateral line with a single opening to the exterior. **Colour:** body brownish to tannish above; white below with specks of brown sparse on breast, more heavily stippled posteriorly; spinous dorsal fin dusky, with a broad submarginal brown band; soft dorsal fin pale, with small brown spots on rays; anal fin white; pectoral fins dusky brown, with traces of vertical dark bands, lower margin white; pelvic fins with whitish base, stippled with brown, with well-developed submarginal dark band; caudal fin dusky, usually with a row of dark streaks forming a submarginal dark band.

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

Habitat, biology, and fisheries: Benthic species inhabiting the continental shelf off western and northern Australia to depths of about 108 m. Caught in trawls.

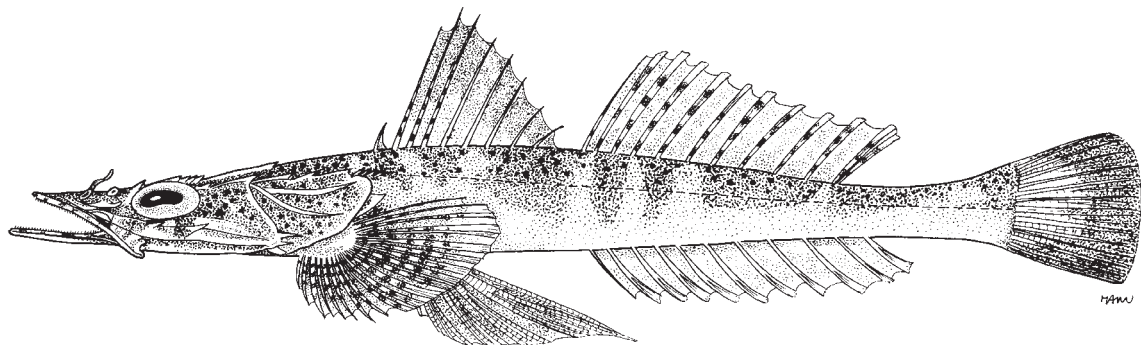
Distribution: Restricted to the Arafura and Timor seas off Australia.



Cociella punctata (Cuvier in Cuvier and Valenciennes, 1829)

Frequent synonyms / misidentifications: None / *Cociella crocodila* (Tilesius, 1812).

FAO names: En - Spotted flathead.



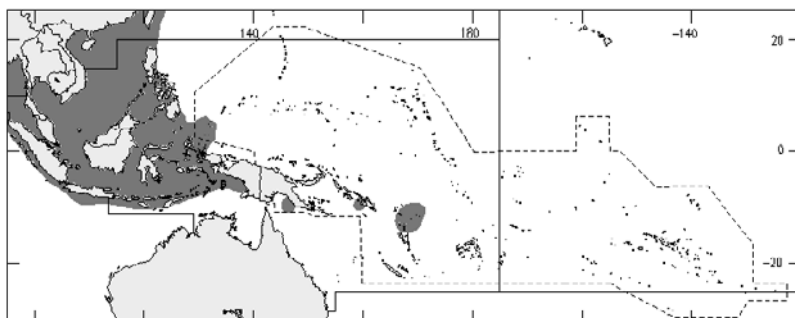
(after Bleeker, 1877-78)

Diagnostic characters: Body elongate, head moderately depressed. Rear edge of maxilla reaches to behind front edge of eye. Preopercular spines usually 3 (sometimes 2), **uppermost preopercular spine longest, reaching only about half-way to opercular margin. Preorbital spine present. Supraorbital ridge usually smooth over anterior half of eye**, bearing 5 to 8 small spines posteriorly. Suborbital ridge bearing 1 spine in front of eye, 2 spines below, and **no spines behind eye**. Teeth on vomer in 2 separate patches. Lower side of head bicarinate. **Interopercular flap present. Iris lappet simple, semicircular.** Dorsal-fin spines I,VIII; dorsal-fin rays 10 to 12 (usually 11); anal-fin rays 11 or 12 (usually 11); pectoral-fin rays 19 to 22 (usually 20 or 21). Number of oblique scale rows slanting backward above lateral line 56 to 76 (mean 68). Lateral-line scales 50 to 56 (usually 53 or 54), anteriormost 1 to 16 scales bearing a small spine. Scale pores of lateral line with a single opening to the exterior. **Colour:** head and body reddish, greyish or brown above, whitish below, frequently with 5 or 6 dark bands crossing back; **numerous small dark spots on back reaching to below lateral line, more widely scattered posteriorly**; spinous dorsal fin with broad submarginal dark band; soft dorsal fin with dark spots on rays; anal-fin membranes dusky; pectoral fins dusky on lower half, spotted above; pelvic fins dusky; caudal fin somewhat variable, usually with a broad dark marginal band or series of dark spots and horizontal streaks, basal area more or less pale.

Size: Maximum total length about 35 cm, commonly to 25 cm.

Habitat, biology, and fisheries: Frequents shallow coastal areas in depths of 10 m or less. Taken in trawl fisheries at depths of 23 to 250 m. Reported from a trap in the Gulf of Aqaba at a depth of 300 m. Young to juvenile stages utilize mangrove habitat.

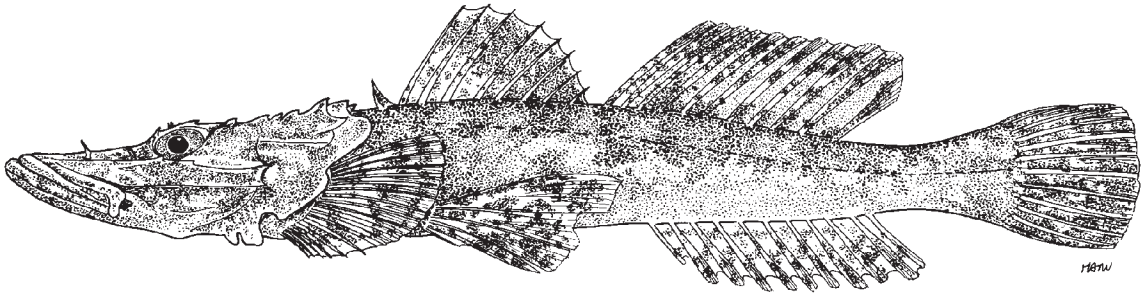
Distribution: Widespread in the Indo-Pacific; Vanuatu to Papua New Guinea, north to Taiwan Province of China, through Indonesia to Thailand, Pakistan, the Red Sea, and South Africa.



Cymbacephalus beauforti (Knapp, 1973)

Frequent synonyms / misidentifications: None / None.

FAO names: En - Crocodile fish.

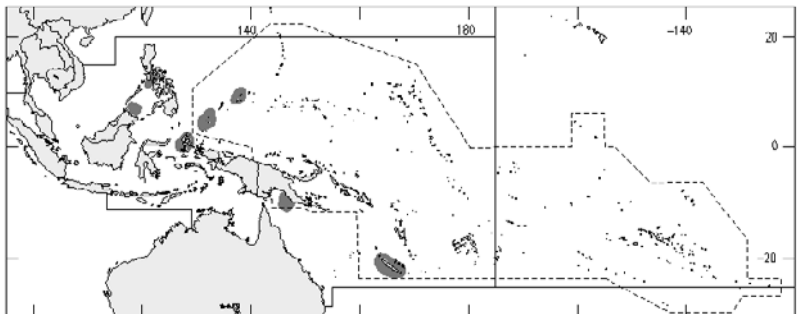


Diagnostic characters: Body elongate, head moderately depressed. **Rear edge of maxilla ends well in front of eye. Prominent pit present behind upper eye. Preopercular spines short, usually 2 subequal, rarely 3. Supraorbital ridge usually smooth over eye, bearing a few small spines posteriorly. Preorbital spines lacking; a single preocular spine; suborbital ridge largely smooth, bearing 2 spines below eye.** Teeth on vomer in 2 separate patches. Lower side of head bicarinate. Iris lappet cirrose. **Dermal papillae (10 to 12 in adults) on upper eye, some simple, some branched, longest not reaching above supraorbital ridge. Interopercular flap usually broader than long, with several subdivisions.** Total gill rakers on first gill arch 5 or 6 (usually 6). **Dorsal-fin spines I,VIII or I,IX; dorsal-fin rays 11; anal-fin rays 11; pectoral-fin rays 19 to 21 (usually 20). Oblique scale rows slanting backward above lateral line more or less equal to number of lateral-line scales.** Lateral-line scales 50 to 55 (usually 52 or 53), anterior 1 to 3 scales bearing a weak spine. Scale pores of lateral line with a single opening to the exterior. **Colour:** body dark brown above, lower sides frequently with irregular dark brown blotches, pale below, breast with brown streaks in some; all fins mottled with small to large dark blotches.

Size: Maximum total length about 47 cm, commonly to 35 cm.

Habitat, biology, and fisheries: Frequents shallow sandy or coral rubble areas near seagrasses or mangroves. Found at depths to about 8 m, but usually at 2 to 3 m.

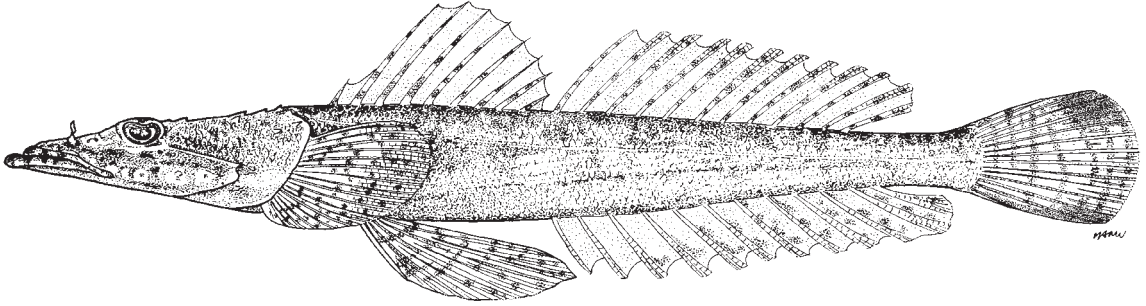
Distribution: Known from New Caledonia, Papua New Guinea, Moluccas, Borneo, Philippines, Palau, and Yap Island to the Ryukyu Islands.



Cymbacephalus bosschei (Bleeker, 1860)

Frequent synonyms / misidentifications: None / None.

FAO names: En - Smalleyed flathead.



(after Taylor, 1964)

Diagnostic characters: Body elongate, head moderately depressed. Rear edge of maxilla reaches to or behind front of eye. **No pit present behind upper eye.** Preopercular spines short, usually 2 subequal, rarely 3. Supraorbital ridge usually smooth over eye, bearing a few small spines posteriorly. Preorbital spines lacking; a single preocular spine; **suborbital ridge mostly smooth, bearing 1 slight spine just behind eye, spine often obscure or lacking in adults.** Teeth on vomer in 2 separate patches. Lower side of head bicarinate. Iris lappet cirrose. No dermal papillae on upper eye. Interopercular flap broad, with shallow incisions. Total gill rakers on first gill arch 6 or 7 (usually 6). Dorsal-fin spines IX or I, VIII; **dorsal-fin rays 12; anal-fin rays 12;** pectoral-fin rays 18 to 21 (usually 19 or 20). Oblique scale rows slanting backward above lateral line 55 to 68, usually about 61 (specimens from Singapore with the lowest counts). Lateral-line scales 51 to 55 (usually 52 or 53), anterior 0 to 2 scales bearing a weak spine. Scale pores of lateral line with a single opening to the exterior. **Colour:** most with body brownish above, light tan below, back mottled with dark brown blotches; some darker specimens with white spots on head and back; fins with dark brown spots, forming vertical bands in caudal fin; **caudal fin with a large elongate dark blotch along upper and lower margins;** lower lip with about 4 dark brown bars.

Size: Maximum total length about 44 cm, commonly to 35 cm.

Habitat, biology, and fisheries: Shallow coastal areas and reef flats to about 50 m. Usually captured by spear fishing or with ichthyocide, occasional specimen taken by trawls.

Distribution: Widespread from Brisbane and Darwin to Western Australia, Papua New Guinea, the Philippines, Borneo, and Singapore.

