

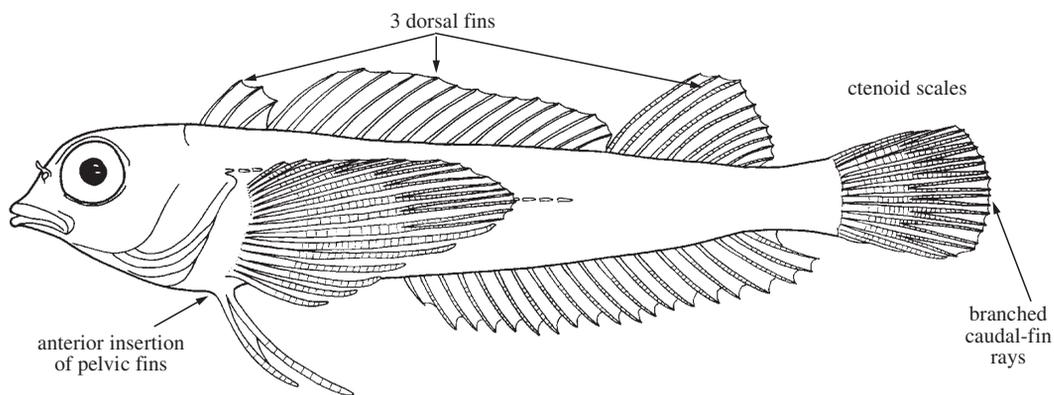
## Suborder BLENNIOIDEI

## TRIPTERYGIIDAE

## Triplefins

by J.T. Williams and R. Fricke

**Diagnostic characters:** Small, slender fishes (seldom longer than 5 cm). Cirri often present on top of eye and on rim of anterior nostril. **Upper and lower jaws each with broad band of conical teeth.** **Three well-defined dorsal fins, the first with III to X (III or IV in the area) spines, the second with VIII to XXVI spines, the third with 7 to 17 segmented rays;** last dorsal-fin spine and first segmented ray borne on separate pterygiophores; anal fin with 0 to II spines and 14 to 32 segmented rays; caudal fin with 13 segmented rays, 9 of which are branched; **pelvic fins with 2 (3 in *Lepidoblennius*) simple segmented rays and I embedded spine, the fin inserted anterior to pectoral-fin base.** **Ctenoid (cycloid in 1 species of *Lepidoblennius*) scales on body.** **Colour:** highly variable, often showing sexual dichromatism; frequently with irregular bars or a mottled pattern; males may have reddish pigmentation and/or black areas on head and body, females usually mottled with brown or green.



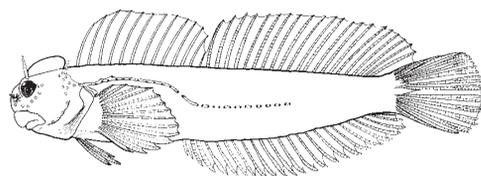
**Habitat, biology, and fisheries:** Benthic, cryptic fishes occurring on rocky or coral substrates in shallow water, but some species are found as deep as 550 m. They are very abundant in littoral areas, but are rarely utilized commercially because of their small size. Of little commercial interest, but they have been found in Indonesian fish markets.

## Similar families occurring in the area

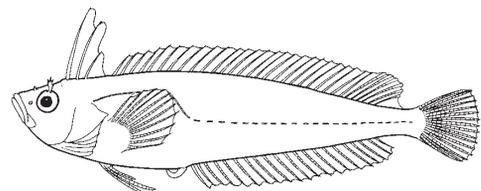
**Blenniidae:** body always naked (scaly in Tripterygiidae); a single row of incisors in each jaw (Tripterygiidae with several rows of conical teeth, at least anteriorly in jaws); dorsal fin consisting of a single continuous fin, often deeply notched between spinous and segmented rays (3 clearly defined dorsal fins in Tripterygiidae); dorsal fin with more, a few species with 0 to 3 less, segmented than spinous rays (more spines than rays in Tripterygiidae).

**Clinidae:** 1 or 2 clearly defined dorsal fins (3 clearly defined dorsal fins in Tripterygiidae); caudal-fin rays unbranched (middle rays branched in Tripterygiidae).

**Eleotridae and Gobiidae:** 2 dorsal fins, the first spinous, the second with I spine and 5 to 37 segmented rays. Gobiidae with pelvic fins united or separate.



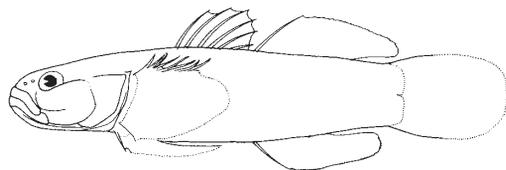
Blenniidae



Clinidae



Eleotridae



Gobiidae

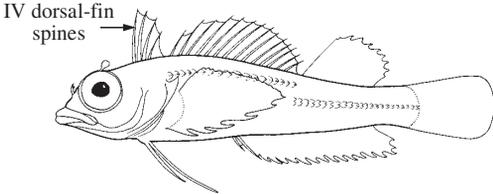
**Key to the genera of Tripterygiidae occurring in the area**

- 1a. First dorsal fin with IV spines (Fig. 1) . . . . . *Norfolkia*
- 1b. First dorsal fin with III spines . . . . . → 2

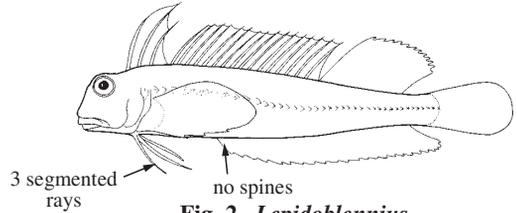
- 2a. Anal fin without spines; pelvic fins with 3 segmented rays (third connected to second) (Fig. 2) . . . . . *Lepidoblennius*

- 2b. Anal fin with I small reduced spine; pelvic fins with 2 segmented rays . . . . . → 3

- 2c. Anal fin with II small spines (partially fused in some *Springerichthys*); pelvic fins with 2 segmented rays . . . . . → 5

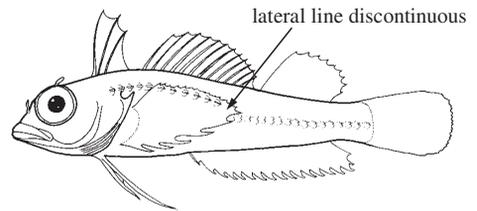


**Fig. 1** *Norfolkia*



**Fig. 2** *Lepidoblennius*

- 3a. Lateral line discontinuous, anterior portion with tubed scales following contour of back to about midbody, then separated by about 2 scale rows from midlateral row of notched scales (Fig. 3) . . . . . *Enneapterygius*

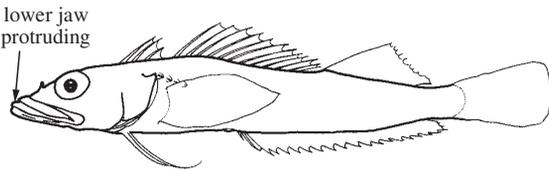


**Fig. 3** *Enneapterygius*

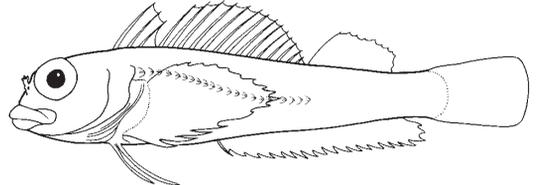
- 3b. Lateral line continuous, sloping gently downward behind pectoral fins, with or without notched scales continuing posteriorly in same series as tubed lateral-line scales . . . . . → 4

- 4a. Lower jaw protruding anteriorly beyond upper jaw with mouth closed (Fig. 4) . . . . . *Ucla*

- 4b. Lower jaw not protruding anteriorly beyond upper jaw with mouth closed (Fig. 5) . . . . . *Helcogramma*



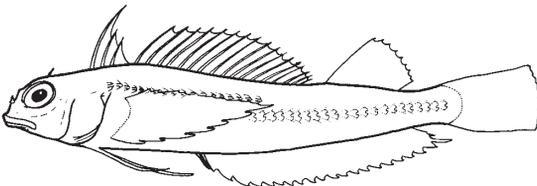
**Fig. 4** *Ucla*



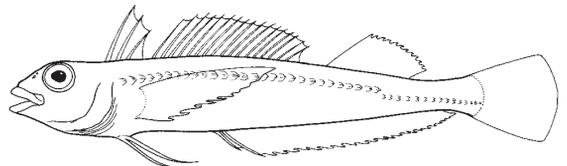
**Fig. 5** *Helcogramma*

- 5a. Belly completely scaly (Fig. 6) . . . . . *Ceratobregma*

- 5b. Belly scaly over posterior half, naked anteriorly (Fig. 7) . . . . . *Springerichthys*



**Fig. 6** *Ceratobregma*



**Fig. 7** *Springerichthys*

**List of species occurring in the area**

- Ceratobregma acanthops* (Whitley, 1965)  
*Ceratobregma helenae* Holleman, 1987  
*Enneapterygius atriceps* (Jenkins, 1903)  
*Enneapterygius atrogulare* (Günther, 1873)  
*Enneapterygius bahasa* Fricke, 1997  
*Enneapterygius clea* Fricke, 1997  
*Enneapterygius elegans* (Peters, 1877)  
*Enneapterygius fasciatus* (Weber, 1909)  
*Enneapterygius flavoccipitis* Shen and Wu, 1994  
*Enneapterygius fuscoventer* Fricke, 1994  
*Enneapterygius gracilis* Fricke, 1994  
*Enneapterygius hemimelas* (Kner and Steindachner, 1866)  
*Enneapterygius howensis* Fricke, 1997  
*Enneapterygius larsonae* Fricke, 1994  
*Enneapterygius mirabilis* Fricke, 1994  
*Enneapterygius namarrgon* Fricke, 1997  
*Enneapterygius nanus* (Schultz *in* Schultz et al., 1960)  
*Enneapterygius niger* Fricke, 1994  
*Enneapterygius nigricauda* Fricke, 1997  
*Enneapterygius ornatus* Fricke, 1997  
*Enneapterygius pallidoserialis* Fricke, 1997  
*Enneapterygius paucifasciatus* Fricke, 1994  
*Enneapterygius philippinus* (Peters, 1869)  
*Enneapterygius pyramis* Fricke, 1994  
*Enneapterygius randalli* Fricke, 1997  
*Enneapterygius rhabdotus* Fricke, 1994  
*Enneapterygius routhion* Fricke, 1997  
*Enneapterygius rubicauda* Shen and Wu, 1994  
*Enneapterygius rufopileus* (Waite, 1904)  
*Enneapterygius signicauda* Fricke, 1997  
*Enneapterygius similis* Fricke, 1997  
*Enneapterygius triserialis* Fricke, 1994  
*Enneapterygius tutuilae* Jordan and Seale, 1906  
*Enneapterygius unimaculatus* Fricke, 1994  
*Enneapterygius vexillarius* Fowler, 1946  
*Enneapterygius williamsi* Fricke, 1997  
*Enneapterygius zieglerei* Fricke, 1994  
  
*Helcogramma aquilum* Williams and McCormick, 1990  
*Helcogramma capidatum* Rosenblatt *in* Schultz, 1960  
*Helcogramma chica* Rosenblatt *in* Schultz, 1960  
*Helcogramma ellioti* (Herre, 1944)  
*Helcogramma fuscipectoris* (Fowler, 1946)  
*Helcogramma gymnauchen* (Weber, 1909)  
*Helcogramma hudsoni* (Jordan and Seale, 1906)  
*Helcogramma inclinatum* (Fowler, 1946)  
*Helcogramma kranos* Fricke, 1997  
*Helcogramma novaecaledoniae* Fricke, 1994  
*Helcogramma obtusirostre* (Klunzinger, 1871)  
*Helcogramma rhinoceros* Hansen, 1986  
*Helcogramma solorensis* Fricke, 1997  
*Helcogramma springeri* Hansen, 1986  
*Helcogramma striatum* Hansen, 1986  
*Helcogramma trigloides* Fricke, 1997  
*Helcogramma vulcanum* Randall and Clark, 1993  
  
*Lepidoblennius haplodactylus* Steindachner, 1867

- Norfolkia brachylepis* (Schultz, 1960)  
*Norfolkia squamiceps* (McCulloch and Waite, 1916)  
*Norfolkia thomasi* Whitley, 1964  
*Springerichthys kulbickii* (Fricke and Randall, 1994)  
*Ucla xenogrammus* Holleman, 1993

## References

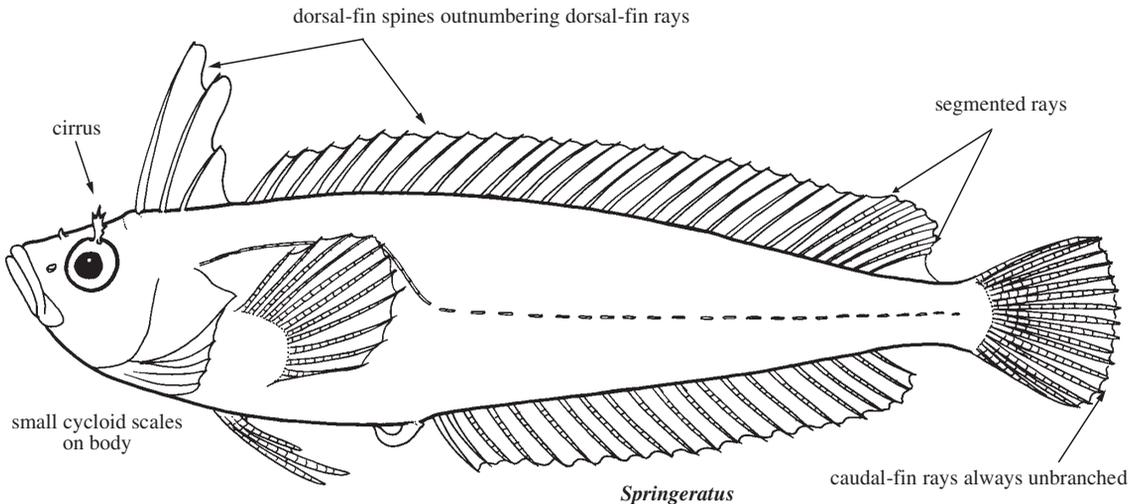
- Fricke, R. 1994. *Tripterygiid fishes of Australia, New Zealand and the Southwest Pacific Ocean, with descriptions of 2 new genera and 16 new species (Teleostei)*. Theses Zoologicae, (24):585 p.
- Fricke, R. 1997. *Tripterygiid fishes of the western and central Pacific, with descriptions of 15 new species, including an annotated checklist of world Tripterygiidae (Teleostei)*. Theses Zoologicae, (29):607 p.
- Shen, S.C. and K.-Y. Wu. 1994. A revision of the tripterygiid fishes from coastal waters of Taiwan with descriptions of two new genera and five new species. *Acta Zool. Taiwanica*, 5(2):1-32.
- Williams, J.T., and C.J. McCormick. 1990. Two new species of the genus *Helcogramma* (Tripterygiidae) from the western Pacific. *Copeia*, 1990(4):1020-1030.

## CLINIDAE

### Weedfishes

by H.K. Larson

**Diagnostic characters:** Elongate, often **highly compressed**, small blennioid fishes (size to about 60 cm), with cycloid scales (often very small and embedded). **Cirri usually present above eye**, but absent from nape; **cirri may be present on tips of dorsal-fin spines and rays**. Eye medium sized, laterally placed, usually with tufted cirri on dorsal surface. **Mouth large, extending back to rear of eye**. Teeth small, may be present on vomer and palatines. Anterior nostril may have cirri or tentacle present. **All fin rays simple** (unbranched). **Dorsal fin always with more spines than soft rays**; continuous or divided anteriorly, **the first portion (if present) with III spines, the second (long) portion with XXVI to XXIX spines and 1 to 8 soft rays**. Anal fin with II spine and 3 soft rays (last ray may be considerably reduced). Scales very small, always cycloid; head without scales. Lateral-line scales 14 to 34; lateral-line tubes embedded in skin; rows of lateral-line pores present on head. **Males with intromittent organ**; variably developed genital flaps and valves present around organ. Branchiostegal rays 6. Vertebrae 13-35 + 21-63. Supraneural bones 0 to 17. Ventral hypural plate fused to urostyle. Cord-like ligament extends from each ceratohyal to anterior end of dentary. **Colour:** usually brown, yellow, and green, often with variable spots and mottling (camouflage patterns).

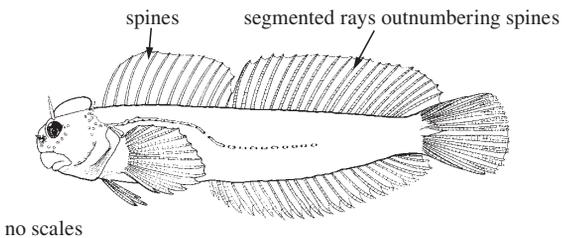


**Habitat, biology and fisheries:** At least 20 genera in the family, which is divided into 3 tribes. Clinids live inshore, such as in estuaries or rocky pools, often associated with algae or seagrasses, which they can resemble. Males usually have an intromittent organ, and most species appear to be viviparous. Clinids do not have any commercial importance in the area, but may be taken incidentally.

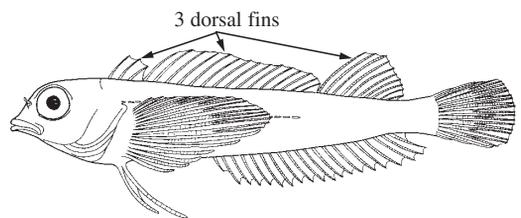
### Similar families occurring in the area

**Blenniidae:** body without scales; dorsal fin continuous, with fewer than XX (flexible) spines and 12 or more soft rays; cirri may be present above eyes and on nape; caudal-fin rays branched or simple.

**Tripterygiidae:** 3 separate dorsal fins present, 2 with flexible spines and 1 fin with soft rays; scales always present, ctenoid and not embedded; cirri may be present on eye; caudal-fin rays branched.



**Blenniidae**



**Tripterygiidae**

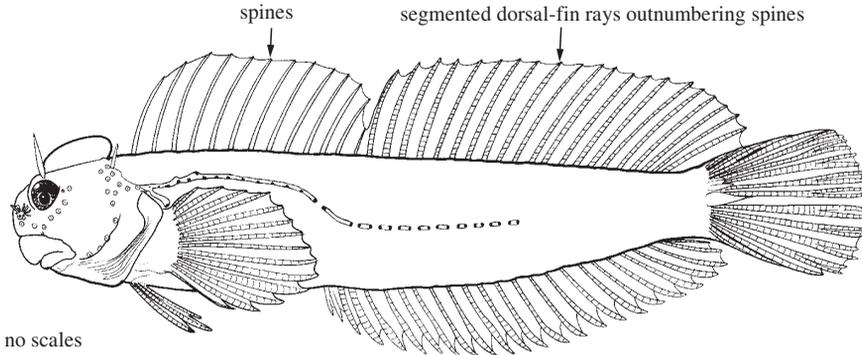


## BLENNIIDAE

### Blennies (cometooth and sabertooth blennies)

by V.G. Springer

**Diagnostic characters:** Small, **scaleless**, often elongate fishes (*Xiphasia*, with 2 eel-like species, attaining about 53.2 cm, but most species much less than 15 cm). **Head often with cirri on eyes, nasal openings, nape, or cheeks. Gill openings continuous across lower surface of head or restricted to small opening on each side of head.** Upper jaw not protrusible. **Teeth incisor-like, in single row in each jaw**, often very fine and loosely attached; enlarged canine tooth often present posteriorly on each side of lower and, sometimes, upper jaw; teeth sometimes present on vomer, never on palatines or pterygoids. **All fin spines flexible; all soft rays, except those of caudal fin of some species, simple** (unbranched). **Dorsal fin with more segmented rays than spines** in all but few species, in which rays vary from equal in number to up to 2 less than number of spines, fin continuous or notched, sometimes deeply, between spines and rays. **Anal fin with II spines**, often indistinguishable (first spine frequently reduced, not visible in females), spines of males sometimes imbedded in fleshy, bulbous swellings. Segmented caudal-fin rays 10 to 14, rarely more than 9 branched, often all unbranched. **Pelvic fins in advance of pectoral fins, pelvic-fin spine not visible externally, soft rays fewer than 5**, sometimes deformed or absent. **Colour:** very variable, dull to brilliant, full spectrum; often mottled, with irregular vertical bands or stripes, some species almost uniform.



(after Springer and Williams, 1994)

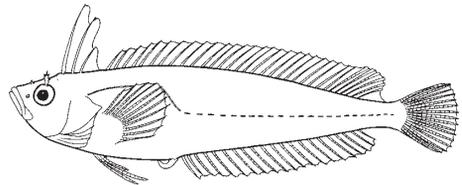
**Habitat, biology, and fisheries:** Benthic inhabitants in sea and estuaries, usually at depths much less than 20 m, mostly among rocky, oyster, or coral reefs, often in tidepools; a few species in fresh-water streams, sessile marine vegetation, or floating sargassum. Some tidepool species leave water at night; adult *Xiphasia* and larval stages of other species occasionally attracted to lights at night, larvae occasionally taken in surface plankton tows. Commercial importance very little because of their small size; a few of the larger species of *Blenniella*, *Istiblennius*, and *Salaria*s occasionally appear in markets in areas with dense human populations.

#### Similar families occurring in the area

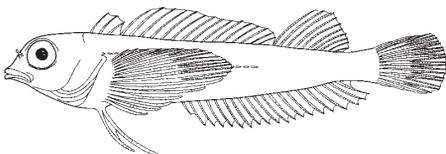
**Clinidae:** body with fine, embedded cycloid scales; scales cycloid with radii in all fields; many more dorsal-fin spines than segmented rays; jaw teeth in more than 1 row.

**Tripterygiidae:** body with ctenoid scales; dorsal-fin clearly divided into 3 parts; many more dorsal-fin spines than rays; jaw teeth in more than 1 row.

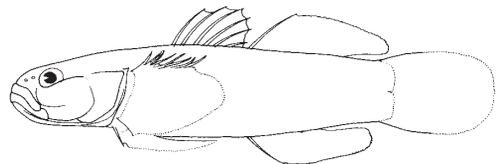
**Gobiidae, Eleotridae:** body usually scaly; pelvic fins usually with I spine and 5 soft rays; dorsal fin in 2 well-separated sections, the spinous portion with less than VIII spines, the segmented ray portion with I spine at beginning.



**Clinidae**



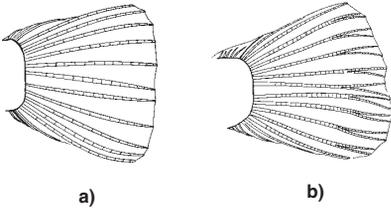
**Tripterygiidae**



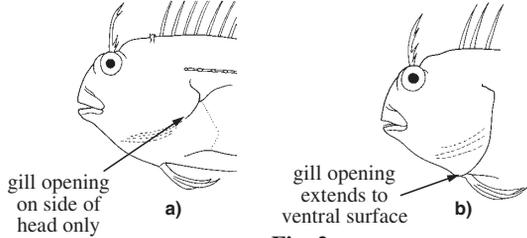
**Gobiidae**

**Key to the genera of Blenniidae occurring in the area (not valid for use in other areas)**

- 1a. All segmented caudal-fin rays simple (Fig. 1a) . . . . . → 2
- 1b. Several segmented caudal-fin rays forked (Fig. 1b) . . . . . → 20
- 2a. Gill opening restricted to side of head (Fig. 2a) . . . . . → 3
- 2b. Gill opening continuous across ventral surface of head (Fig. 2b) . . . . . → 14



**Fig. 1 caudal fin**

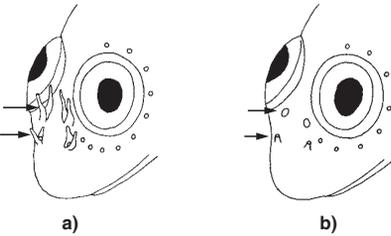


**Fig. 2**

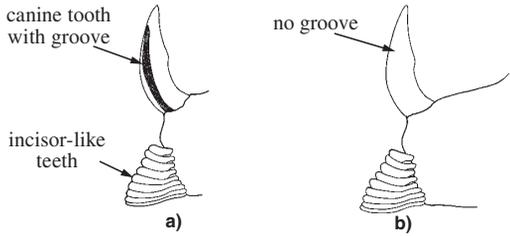
- 3a. Cirri present on rims of both anterior and posterior nostrils (Fig. 3a); body covered with pattern of small, dark spots (no bands, stripes, or complex markings) . . . . . *Laiphognathus*
- 3b. Cirri absent from both nostrils, or present only on rim of posterior nostril, but not both (Fig. 3b; nostrils may open at end of tubes); body colour pattern various, but never consisting only of dark spots . . . . . → 4

- 4a. Body ribbon- or eel-like; anal-fin elements more than 95; segmented caudal-fin rays 10; origin of dorsal fin over orbits in adults . . . . . *Xiphasia*
- 4b. Body not ribbon- or eel-like; anal-fin elements fewer than 60; segmented caudal-fin rays 11 to 13; origin of dorsal fin distinctly behind or over posterior rim of orbits in adults . . . . . → 5

- 5a. Canine teeth in lower jaw with deep groove along anterior surface (Fig. 4a); lower margin of gill opening entirely above pectoral-fin base . . . . . *Meiacanthus*
- 5b. Canine teeth in lower jaw without deep groove along anterior surface (Fig. 4b); lower margin of gill opening above or opposite pectoral-fin base . . . . . → 6



**Fig. 3**



**Fig. 4 teeth in lower jaw**

- 6a. Segmented caudal-fin rays 11 . . . . . → 7
- 6b. Segmented caudal-fin rays 13 (uncommonly 12, 14, or 15) . . . . . → 9

- 7a. Pectoral-fin rays 11 to 13 (typically 12); lateral line absent; dorsal-fin spines VI to XII; segmented dorsal-fin rays 25 to 39 . . . . . *Plagiotremus*
- 7b. Pectoral-fin rays 13 to 16; lateral line present, extending posteriorly along dorsal body contour at least to beneath vertical from base of last dorsal-fin spine . . . . . → 8

- 8a. Lower margin of gill opening entirely above pectoral-fin base; segmented anal-fin rays 14 to 21; segmented dorsal-fin rays 14 to 21; cirrus on eye present or absent . . . . . *Petroscirtes*
- 8b. Lower margin of gill opening extending ventrally to or below point opposite base of third from dorsalmost ray . . . . . *Aspidontus*

- 9a. Segmented pelvic-fin rays 3; segmented dorsal-fin rays 14 or 15; total dorsal-fin elements 26 to 28 . . . . . *Phenablennius*
- 9b. Segmented pelvic-fin rays 2; segmented dorsal-fin rays 15 to 27; total dorsal-fin elements 27 to 35 . . . . . → 10
  
- 10a. Pectoral-fin rays 14 to 17; dorsal-fin spines VII to X (rarely X); dorsal and anal fins broadly confluent with caudal fin (scarcely any separation of fins; Fig. 5a) . . . . . *Enchelyurus*
- 10b. Pectoral-fin rays 12 to 14 (usually 13); dorsal-fin spines X to XIV (rarely X); dorsal and anal fins varying from completely separate from caudal fin to attached to caudal fin only basally (Fig. 5b). . . . . → 11
  
- 11a. Interorbital broad, width equal to or greater than eye diameter; interorbital pores 4 (Fig. 6) . . *Haptogenys*
- 11b. Interorbital narrow, width much narrower than eye diameter; interorbital pores 3 or 4 . . . . . → 12
  
- 12a. Lower margin of gill opening opposite seventh to tenth from dorsalmost pectoral-fin ray; interorbital pores 4 (rarely 3); mandibular pores 3 (Fig. 6) . . . . . *Omx*
- 12b. Lower margin of gill opening varying from dorsal to pectoral-fin base to opposite sixth from dorsalmost pectoral-fin ray; interorbital pores 2 to 4 (3 in more than 90% of specimens); mandibular pores 2 or 3 . . . . . → 13
  
- 13a. Mandibular pores 2; no fleshy, blade-like crest on top of head; total dorsal-fin elements 28 to 31 . . . . . *Parenchelyurus*
- 13b. Mandibular pores 3; fleshy, blade-like crest present (Fig. 7) or absent on top of head; total dorsal-fin elements 29 to 35 . . . . . *Omobranchus*
  
- 14a. Orbital cirrus absent; segmented caudal-fin rays simple (Fig. 1a), modally 13 or 14 . . . . . *Ecsenius*
- 14b. Orbital cirrus present (absent in *Stanulus seychellensis*); segmented caudal-fin rays simple or branched (Fig. 1b), modally 11 to 13 . . . . . → 15

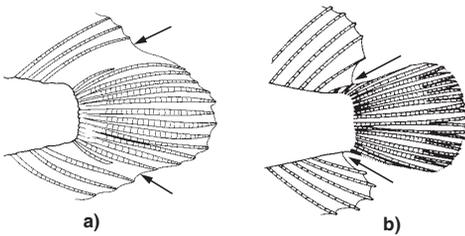


Fig. 5

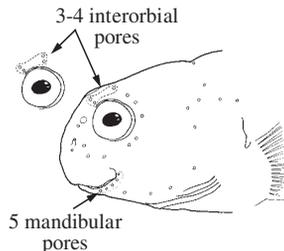


Fig. 6

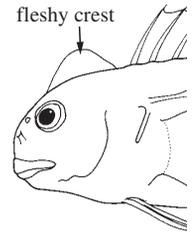


Fig. 7

- 15a. Total upper- and lower-jaw teeth each more than 75 (usually more than 100), loosely attached to gums; attaining at least 7.5 cm standard length . . . . . → 16
- 15b. Total upper- and lower-jaw teeth each less than 50 (may be less than 30), more or less firmly attached to jaws; attaining no more than 4 cm standard length . . . . . → 18
  
- 16a. Nape cirri present; dorsal-fin spines IX to XI; apparent segmented pelvic-fin rays 2; pectoral-fin rays 15 to 18 (usually 16 or 17); no fleshy, blade-like crest on top of head . . . . . *Atrosalarias*
- 16b. Nape cirri absent; dorsal-fin spines XIII to XVII; apparent segmented pelvic-fin rays 3 or 4; pectoral-fin rays 14 or 15; fleshy, blade-like crest present (Fig. 7) or absent on top of head . . . . . → 17
  
- 17a. Prominent fleshy disc-like appendage (Fig. 8a) on ventral surface of head posterior to lower lip . . . . . *Andamia*
- 17b. No fleshy disc-like appendage on ventral surface of head (Fig. 8b) . . . . . *Alticus*

- 18a. Tiny simple cirrus present only on rim of anterior nostril; segmented caudal-fin rays 12 . . . . . *Litobranchus*
- 18b. Numerous prominent cirri on rims of anterior and posterior nostrils (Fig. 9); segmented caudal-fin rays 13 . . . . . → 19
- 19a. Pectoral-fin rays 13; cirri present in interorbital area . . . . . *Medusablennius*
- 19b. Pectoral-fin rays 14; no cirri in interorbital area . . . . . *Cirrissalarias*
- 20a. Cirri present on cheek near preopercular sensory pores (Fig. 10); raised large, dark spot on top of head surrounding dorsal-fin origin (Fig. 10) . . . . . *Crossosalarias*
- 20b. No cirri present on cheek; no dark spot on top of head surrounding dorsal-fin origin . . . . . → 21

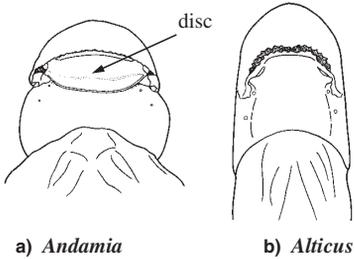


Fig. 8 ventral view of head

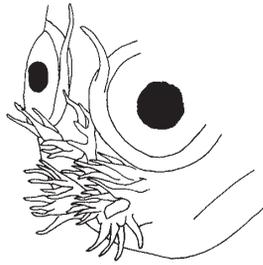


Fig. 9 snout region

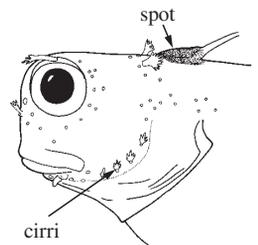


Fig. 10

- 21a. Nape cirri numerous, comb-like, extending more or less continuously across nape (Fig. 11a) . . . . . → 22
- 21b. Nape cirri, if present, simple filament, flap-like, or in small patch on each side of nape, variably well removed from or adjacent to midline of head (Fig. 11b, c) . . . . . → 23

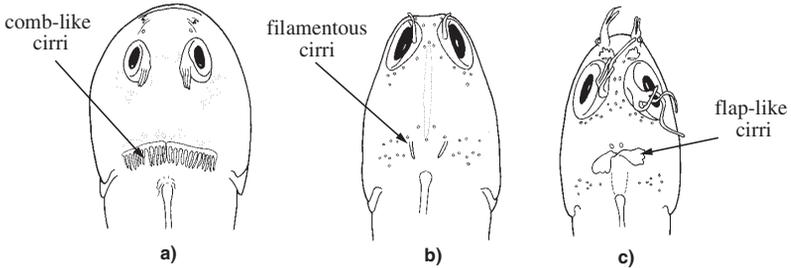


Fig. 11 dorsal view of head

- 22a. Posterior dentary canines absent; total upper-jaw teeth about 3 or 4 times as many as total lower-jaw teeth; dorsal fin with XII spines and 12 or 13 segmented rays; head, body, and fins covered with dark spots and/or rosettes of dark spots . . . . . *Exallias*
- 22b. Posterior dentary canines present (Fig. 4b); total upper-jaw teeth less than twice as many as total lower-jaw teeth; dorsal fin with XII spines and 13 to 17 (rarely 13) segmented rays; colour patterns various . . . . . *Cirripectes*
- 23a. Segmented dorsal-fin rays 9 to 12; segmented anal-fin rays 10 to 13; maximum size less than 5 cm standard length . . . . . *Stanulus*
- 23b. Segmented dorsal-fin rays 13 or more; segmented anal-fin rays 14 or more; some species attaining more than 15 cm standard length . . . . . → 24
- 24a. Pectoral-fin rays modally 13; dark spot, much smaller than eye, on gill membrane just anterior to each pelvic-fin base; maximum size less than 5 cm standard length . . . . . *Glyptoparus*
- 24b. Pectoral-fin rays modally 14 or 15; dark spot on gill membrane, if present, larger than eye; some species attaining more than 15 cm standard length . . . . . → 25

- 25a. Total lower-jaw teeth less than 40 . . . . . → 26
- 25b. Total lower-jaw teeth more than 45 (more than 100 in some species) . . . . . → 28
  
- 26a. Nape cirri present (small flap immediately adjacent to midline on each side of predorsal area); dorsal-fin spines modally XIII; orbital cirrus simple or forked, often longer than eye diameter; vomer without teeth . . . . . *Mimoblennius*
- 26b. Nape cirri absent; dorsal-fin spines modally XII; orbital cirrus either short, simple filament or branched flap; vomer with teeth . . . . . → 27
  
- 27a. Orbital cirrus a simple filament; segmented dorsal-fin rays 18 to 21 . . . . . *Rhabdoblennius*
- 27b. Orbital cirrus a fringed flap; segmented dorsal-fin rays 13 to 17 . . . . . *Parablennius*
  
- 28a. Dorsal-fin spines modally XII; total lower-jaw teeth less than 55 or more than 70; terminal anal-fin ray simple, bound by membrane to caudal peduncle (Fig. 5) . . . . . → 29
- 28b. Dorsal-fin spines modally XIII or XIV; total lower-jaw teeth more than 70; terminal anal-fin ray simple or split to base (Fig. 12), free or bound by membrane to caudal peduncle . . . . . → 30
  
- 29a. Segmented pelvic-fin rays 2; total lower-jaw teeth more than 70; no teeth on vomer; anterior segmented anal-fin rays often much longer than others . . . . . *Salaria*
- 29b. Apparent segmented pelvic-fin rays 3; total lower-jaw teeth less than 55; teeth on vomer; anterior segmented anal-fin rays same length or shorter than others . . . . . *Nannosalarias*
  
- 30a. Pectoral-fin rays modally 15; nape cirri absent; mandibular pores 3 or 4 (Fig. 6); branched caudal-fin rays 5 to 9; last segmented dorsal-fin ray attached by membrane to point on caudal peduncle at or anterior to base of caudal fin (Fig. 5b) . . . . . *Praealticus*
- 30b. Pectoral-fin rays modally 14; nape cirri present or absent; mandibular pores 4 to 6; branched caudal-fin rays 8 to 10; last segmented dorsal-fin ray attached by membrane to point ranging from on caudal peduncle anterior to base of caudal fin to well out on dorsal edge of caudal fin . . . . . → 31
  
- 31a. Segmented pelvic-fin rays 4; teeth present on vomer; segmented dorsal-fin rays 13 to 18 (rarely 18); nape cirri present (absent in 1 species from Marquesas); no fleshy blade-like crest on top of head . . . . . *Entomacrodus*
- 31b. Apparent segmented pelvic-fin rays 3 (inapparent fourth ray in only 1 species from Philippines); no teeth on vomer; segmented dorsal-fin rays more than 17 (usually more than 18); nape cirri present or absent; fleshy blade-like crest present or absent on top of head. . . . . → 32
  
- 32a. Mandibular pores (Fig. 6) 3 or 4; segmented caudal-fin rays 14 (ventralmost very short); last anal-fin ray bound by membrane to caudal peduncle (Fig. 5b); dorsal-fin spines XIV (last spine may be inconspicuous); nape cirri absent; no fleshy, blade-like crest on top of head; orbital cirrus relatively large, broad, fringed flap . . . . . *Paralticus*
- 32b. Mandibular pores 5 to 7; segmented caudal-fin rays strongly modally 13 (14 commonly in only 1 species); last anal-fin ray free (Fig. 12), rarely bound by membrane to caudal peduncle); dorsal-fin spines modally XIII or XIV (XIV in only 1 species; last spine may be inconspicuous); nape cirri present or absent; fleshy, blade-like crest present or absent on top of head; orbital cirrus varying from simple filament, to highly branched stalk, to small fringed flap . . . . . → 33

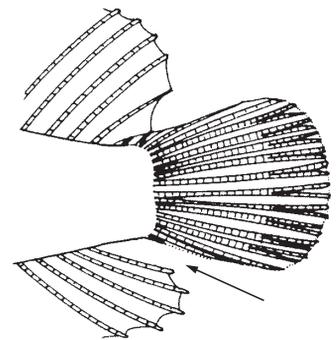
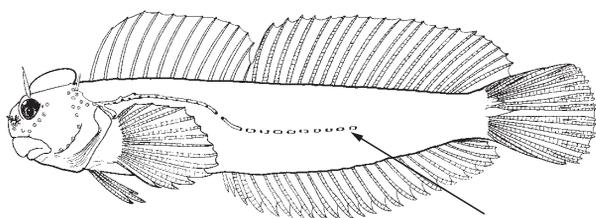


Fig. 12

**33a.** Canine teeth present posteriorly on dentary; orbital cirrus a simple filament, occasionally with 1 or 2 side branches, or filament with several fine branches at tip; fleshy, blade-like crest present or absent on head of males; bi-pored lateral-line tubes (Fig. 13) 0 to 7 (rarely more than 5) . . . . . *Blenniella*



**Fig. 13**

bipored lateral-line tubes

**33b.** Canine teeth absent on dentary (except present in some specimens of 1 species, which has pinnately branched orbital cirrus); orbital cirrus varying from simple filament to highly branched stalk, to small fringed flap; fleshy, blade-like crest present on head of males; bipored lateral-line tubes 1 to 26 . . . . . *Istiblennius*

**List of species occurring in the area**

- Alticus arnoldorum* (Curtis, 1938)
- Alticus montanoi* (Sauvage, 1880)
- Alticus saliens* (Lacepède, 1800)
- Alticus sertatus* (Garman, 1903)
- Alticus simplicirrus* Smith-Vaniz and Springer, 1971
- Andamia aequipinnis* (Günther, 1861)
- Andamia amphibius* (Walbaum, 1792)
- Andamia cyclocheilus* Weber, 1909
- Andamia heteroptera* (Bleeker, 1857)
- Andamia reyi* (Sauvage, 1880)
- Andamia tetradactylus* (Bleeker, 1858)
- Aspidontus dussumieri* (Valenciennes in Cuvier and Valenciennes, 1836)
- Aspidontus taeniatus* Quoy and Gaimard, 1834
- Atrosalarias fuscus* (Rüppell, 1838)
- Atrosalarias hosokawai* Suzuki and Senou, 1999
- Blenniella bilitonensis* (Bleeker, 1858)
- Blenniella caudolineata* (Günther, 1877)
- Blenniella chrysospilos* (Bleeker, 1857)
- Blenniella cyanostigma* (Bleeker, 1849)
- Blenniella gibbifrons* (Quoy and Gaimard, 1824)
- Blenniella interrupta* (Bleeker, 1857)
- Blenniella leopardus* (Fowler, 1938)
- Blenniella paula* (Bryan and Herre, 1903)
- Blenniella periophthalmus* (Valenciennes in Cuvier and Valenciennes, 1836)
- Cirripectes alboapicalis* (Ogilby, 1899)
- Cirripectes alleni* Williams, 1993
- Cirripectes auritus* Carlson, 1981
- Cirripectes castaneus* (Valenciennes in Cuvier and Valenciennes, 1836)
- Cirripectes chelmonatus* Williams and Maugé, 1983
- Cirripectes filamentosus* (Alleyne and Macleay, 1877)
- Cirripectes fuscoguttatus* Strasburg and Schultz, 1953
- Cirripectes imitator* Williams, 1985
- Cirripectes jenningsi* Schultz, 1943
- Cirripectes perustus* Smith, 1959
- Cirripectes polyzona* (Bleeker, 1868)
- Cirripectes quagga* (Fowler and Ball, 1924)
- Cirripectes springeri* Williams, 1988
- Cirripectes stigmaticus* Strasburg and Schultz, 1953
- Cirripectes variolosus* (Valenciennes in Cuvier and Valenciennes, 1836)
- Cirripectes viriosus* Williams, 1988

- Cirrisalarias bunares* Springer, 1976  
*Crossosalarias macropilos* Smith-Vaniz and Springer, 1971  
*Ecsenius aequalis* Springer, 1988  
*Ecsenius australianus* Springer, 1988  
*Ecsenius axelrodi* Springer, 1988  
*Ecsenius bandanus* Springer, 1971  
*Ecsenius bathi* Springer, 1988  
*Ecsenius bicolor* (Day, 1888)  
*Ecsenius bimaculatus* Springer, 1971  
*Ecsenius collettei* Springer, 1972  
*Ecsenius dilemma* Springer, 1988  
*Ecsenius fijiensis* Springer, 1988  
*Ecsenius fourmanoiri* Springer, 1972  
*Ecsenius isos* McKinney and Springer, 1976  
*Ecsenius kurti* Springer, 1988  
*Ecsenius lineatus* Klausewitz, 1962  
*Ecsenius lividanalis* Chapman and Schultz, 1952  
*Ecsenius mandibularis* McCulloch, 1923  
*Ecsenius melarchus* McKinney and Springer, 1971  
*Ecsenius midas* Starck, 1969  
*Ecsenius monoculus* Springer, 1988  
*Ecsenius namiyei* (Jordan and Evermann, 1903)  
*Ecsenius oculus* Springer, 1971  
*Ecsenius opsifrontalis* Chapman and Schultz, 1952  
*Ecsenius pardus* Springer, 1988  
*Ecsenius paroculus* Springer, 1988  
*Ecsenius pictus* McKinney and Springer, 1976  
*Ecsenius portenoyi* Springer, 1988  
*Ecsenius prooculis* Chapman and Schultz, 1952  
*Ecsenius randalli* Springer, 1991  
*Ecsenius schroederi* McKinney and Springer, 1976  
*Ecsenius sellifer* Springer, 1988  
*Ecsenius stictus* Springer, 1988  
*Ecsenius stigmatura* Fowler *in* Chapman and Schultz, 1952  
*Ecsenius taeniatus* Springer, 1988  
*Ecsenius tessera* Springer, 1988  
*Ecsenius tigris* Springer, 1988  
*Ecsenius trilineatus* Springer, 1971  
*Ecsenius yaeyamaensis* (Aoyagi, 1954)  
*Enchelyurus ater* (Günther, 1877)  
*Enchelyurus flavipes* Peters, 1868  
*Enchelyurus kraussi* (Klunzinger, 1871)  
*Entomacrodus caudofasciatus* (Regan, 1909)  
*Entomacrodus corneliae* (Fowler, 1932)  
*Entomacrodus cymatobiotus* Schultz and Chapman, 1960  
*Entomacrodus decussatus* (Bleeker, 1858)  
*Entomacrodus epalzeocheilus* (Bleeker, 1859)  
*Entomacrodus macropilus* Springer, 1967  
*Entomacrodus niuafoouensis* (Fowler, 1932)  
*Entomacrodus randalli* Springer, 1967  
*Entomacrodus rofeni* Springer, 1967  
*Entomacrodus sealei* Bryan and Herre, 1903  
*Entomacrodus stellifer* Jordan and Snyder, 1902  
*Entomacrodus striatus* (Quoy and Gaimard, 1836)  
*Entomacrodus thalassinus* (Jordan and Seale, 1906)  
*Entomacrodus vermiculatus* (Valenciennes *in* Cuvier and Valenciennes, 1836)  
*Exallias brevis* (Kner, 1868)

- Glyptoparus delicatulus* J.L.B. Smith, 1959  
*Haptogenys bipunctata* (Day, 1876) (only fresh or brackish water?)  
*Istiblennius bellus* (Günther, 1861)  
*Istiblennius colei* (Herre, 1934)  
*Istiblennius dussumieri* (Valenciennes in Cuvier and Valenciennes, 1836)  
*Istiblennius edentulus* (Schneider in Bloch and Schneider, 1801)  
*Istiblennius lineatus* (Valenciennes in Cuvier and Valenciennes, 1836)  
*Istiblennius meleagris* (Valenciennes in Cuvier and Valenciennes, 1836)  
*Istiblennius muelleri* (Klunzinger, 1880)  
*Laiphognathus multimaculatus* Smith, 1955  
*Litobranchus fowleri* (Herre, 1936)  
*Medusablennius chani* Springer, 1966  
*Meiacanthus abditus* Smith-Vaniz, 1987  
*Meiacanthus anema* (Bleeker, 1852) (only fresh or brackish water?)  
*Meiacanthus atrodorsalis* (Günther, 1877)  
*Meiacanthus bundoon* Smith-Vaniz, 1977  
*Meiacanthus crinitus* Smith-Vaniz, 1987  
*Meiacanthus ditrema* Smith-Vaniz, 1976  
*Meiacanthus geminatus* Smith-Vaniz, 1976  
*Meiacanthus grammistes* (Valenciennes in Cuvier and Valenciennes, 1836)  
*Meiacanthus limbatus* Smith-Vaniz, 1987  
*Meiacanthus lineatus* (De Vis, 1884)  
*Meiacanthus luteus* Smith-Vaniz, 1987  
*Meiacanthus ovalauensis* (Günther, 1880)  
*Meiacanthus phaeus* Smith-Vaniz, 1976  
*Meiacanthus procne* Smith-Vaniz, 1976  
*Meiacanthus reticulatus* Smith-Vaniz, 1976  
*Meiacanthus smithi* Klausewitz, 1961  
*Meiacanthus tongaensis* Smith-Vaniz, 1987  
*Meiacanthus vicinus* Smith-Vaniz, 1987  
*Meiacanthus vittatus* Smith-Vaniz, 1976  
*Mimoblennius atrocinctus* (Regan, 1909)  
*Nannosalarias nativitatus* (Regan, 1909)  
*Omobranchus anolius* (Valenciennes in Cuvier and Valenciennes, 1836) (only fresh or brackish water?)  
*Omobranchus elongatus* (Peters, 1855)  
*Omobranchus ferox* (Herre, 1927) (only fresh or brackish water?)  
*Omobranchus germaini* (Sauvage, 1883)  
*Omobranchus hikkaduwendensis* Bath, 1983  
*Omobranchus lineolatus* (Kner, 1868)  
*Omobranchus punctatus* (Valenciennes in Cuvier and Valenciennes, 1836)  
*Omobranchus robertsi* Springer, 1981 (only fresh or brackish water?)  
*Omobranchus rotundiceps obliquus* (Garman, 1903)  
*Omobranchus rotundiceps rotundiceps* (Macleay, 1881)  
*Omobranchus smithi* Visweswara Rao, 1974 (only fresh or brackish water?)  
*Omobranchus verticalis* Springer and Gomon, 1975 (only fresh or brackish water?)  
*Omobranchus zebra* (Bleeker, 1868) (only fresh or brackish water?)  
*Omox biporos* Springer, 1972  
*Omox lupus* Springer, 1981 (only fresh or brackish water?)  
*Parablennius tasmanianus caledoniensis* Bath, 1989  
*Parablennius tasmanianus intermedius* (Ogilby, 1915)  
*Parablennius thysanius* (Jordan and Seale, 1907)  
*Paralticus amboinensis* (Bleeker, 1857)

- Parenchelyurus hepburni* (Snyder, 1980)  
*Parenchelyurus hyena* (Whitley, 1953)  
*Petroscirtes breviceps* (Valenciennes in Cuvier and Valenciennes, 1836)  
*Petroscirtes fallax* Smith-Vaniz, 1976  
*Petroscirtes lupus* De Vis, 1886  
*Petroscirtes marginatus* Smith-Vaniz, 1976  
*Petroscirtes mitratus* Rüppell, 1828  
*Petroscirtes springeri* Smith-Vaniz, 1976  
*Petroscirtes thepassi* Bleeker, 1853  
*Petroscirtes variabilis* Cantor, 1850  
*Petroscirtes xestus* Jordan and Seale, 1906  
*Phenablennius heylikeri* (Bleeker, 1859) (only fresh or brackish water?)  
*Plagiotremus isodon* Smith-Vaniz, 1976  
*Plagiotremus laudandus flavus* Smith-Vaniz, 1976  
*Plagiotremus laudandus laudandus* (Whitley, 1961)  
*Plagiotremus rhinorhynchus* (Bleeker, 1852)  
*Plagiotremus spilistius* Gill, 18657)  
*Praealticus bilineatus* (Peters, 1868)  
*Praealticus caesius* (Seale, 1906)  
*Praealticus labrovittatus* Bath, 1992  
*Praealticus margaritatus* (Kendall and Radcliffe, 1912)  
*Praealticus multistriatus* Bath, 1992  
*Praealticus oortii* (Bleeker, 1851)  
*Praealticus poptae* (Fowler, 1925)  
*Praealticus striatus* Bath, 1992  
*Praealticus triangulus* (Chapman, 1951)  
*Rhabdoblennius nitidus* (Günther, 1861)  
*Rhabdoblennius rhabdotrachelus* (Fowler and Ball, 1924)  
*Rhabdoblennius snowi* (Fowler, 1928)  
*Rhabdoblennius walensis* (Herre, 1931)  
*Salarias alboguttatus* Kner, 1867  
*Salarias ceramensis* Bleeker, 1852  
*Salarias fasciatus* (Bloch, 1786)  
*Salarias guttatus* Valenciennes in Cuvier and Valenciennes, 1836  
*Salarias obscurus* Bath, 1992  
*Salarias patzneri* Bath, 1992  
*Salarias ramosus* Bath, 1992  
*Salarias segmentatus* Bath and Randall, 1991  
*Salarias sexfilum* Günther, 1861  
*Salarias sibogai* Bath, 1992  
*Salarias sinuosus* Snyder, 1908  
*Salarias* undescribed species Bath  
*Stanulus seychellensis* Smith, 1959  
*Stanulus talboti* Springer, 1968  
*Xiphasia matsubarai* Okada and Suzuki, 1952  
*Xiphasia setifer* Swainson, 1839

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- Smith-Vaniz, W.F. and V.G. Springer. 1971. Synopsis of the tribe Salariaiini, with description of five new genera and three new species (Pisces: Blenniidae). *Smithson. Contrib. Zool.*, (71):72 p.
- Springer, V.G. and J.T. Williams. 1994. The Indo-west Pacific blennioid fish genus *Istiblennius* reappraised: a revision of *Istiblennius*, *Blenniella*, and *Paralticus*, new genus. *Smithson. Contrib. Zool.*, (565):193 p.
- Williams, J.T. 1988. Revision and phylogenetic relationships of the blennioid fish genus *Cirripectes*. *Indo-Pac. Fishes*, (17):78 p.

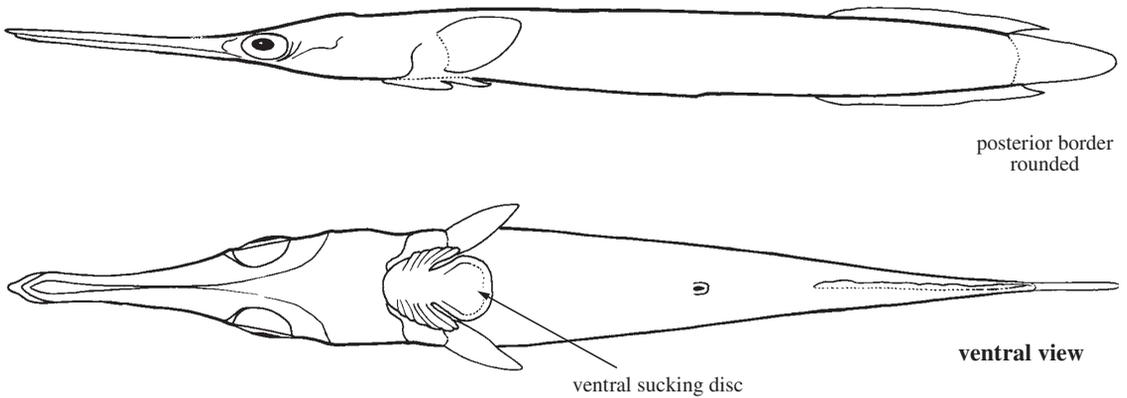
## Suborder GOBIESOCOIDEI

## GOBIESOCIDAE

## Clingfishes

by J.B. Hutchins

**Diagnostic characters:** Small to very small (to about 7 cm) fishes; body anteriorly depressed, posteriorly subcylindrical to compressed; with a **prominent ventral sucking disc** (rudimentary or absent in subfamily Alabetinae, not known from the area); caudal peduncle elongate or absent. Some species with prominent posteriorly directed spine on each side of head. Eyes generally large, located dorsolaterally. Snout elongate or short, flattened, or tubular. Mouth small, usually subterminal; teeth variable, ranging from villiform to fang-like. Gills either free from isthmus or attached to it. **A single short dorsal fin located posteriorly, usually positioned directly above anal fin, both fins consisting of soft rays only; pectoral fins moderate sized, with rounded border, modified to support ventral sucking disc; pelvic fins modified to form a sucking disc on breast;** caudal fin with rounded to truncate posterior margin. Skin scaleless, covered with a thick layer of mucous; sensory pores and papillae on head and along side of body. **Colour:** ground colour variable, including pale brown, green, yellow, red, and black, often with contrasting lines or bars; some species are brilliantly coloured; most species fade quickly upon death, and lose all colour after preservation; they are often able to blend with the surroundings.

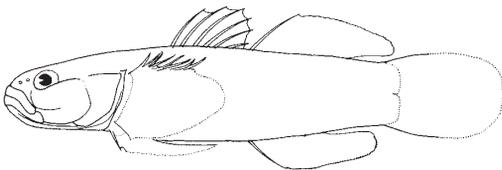


**Habitat, biology, and fisheries:** Inhabit both shallow and deep (to about 200 m) coastal waters. They are found on reefs and in seagrass beds, often clinging to structures using their ventral sucking disc. Some even attach themselves like remoras to other larger fish. They feed on small animals and epiphytes. Because of their small size, clingfishes are not marketed for human consumption. However, some species may appear in the aquarium trade.

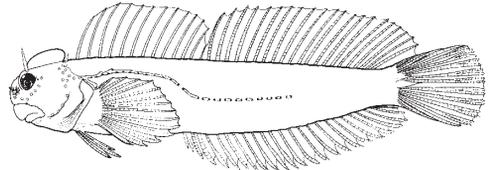
**Similar families occurring in the area**

Gobiidae: always have 2 dorsal fins; most species have scaly skins.

Blenniidae: lack a ventral sucking disc; dorsal and anal fins long based.



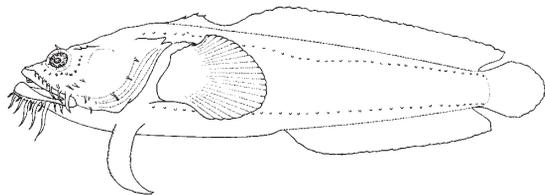
Gobiidae



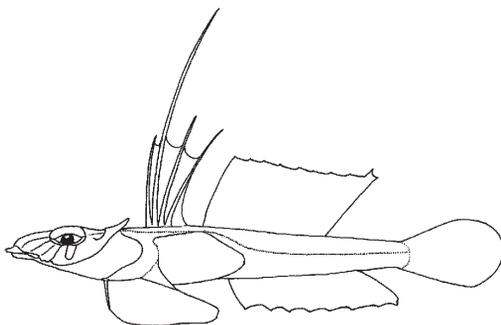
Blenniidae

Batrachoididae: lack a ventral sucking disc; dorsal and anal fins have long bases; possess III or IV spines on each side of head.

Callionymidae: lack a ventral sucking disc; possess 2 dorsal fins.



**Batrachoididae**



**Callionymidae**

### List of species occurring in the area

Note: several species that are presently undescribed are not included here.

*Conidens samoensis* (Steindachner, 1906)

*Diademichthys lineatus* (Sauvage, 1883)

*Discotrema crinophila* Briggs, 1976

*Discotrema lineata* (Briggs, 1966)

*Lepadichthys bolini* Briggs, 1962

*Lepadichthys caritus* Briggs, 1969

*Lepadichthys frenatus* Waite, 1904

*Lepadichthys minor* Briggs, 1955

*Liobranchia stria* Briggs, 1955

*Pheralloodus indicus* (Weber, 1913)

### Reference

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