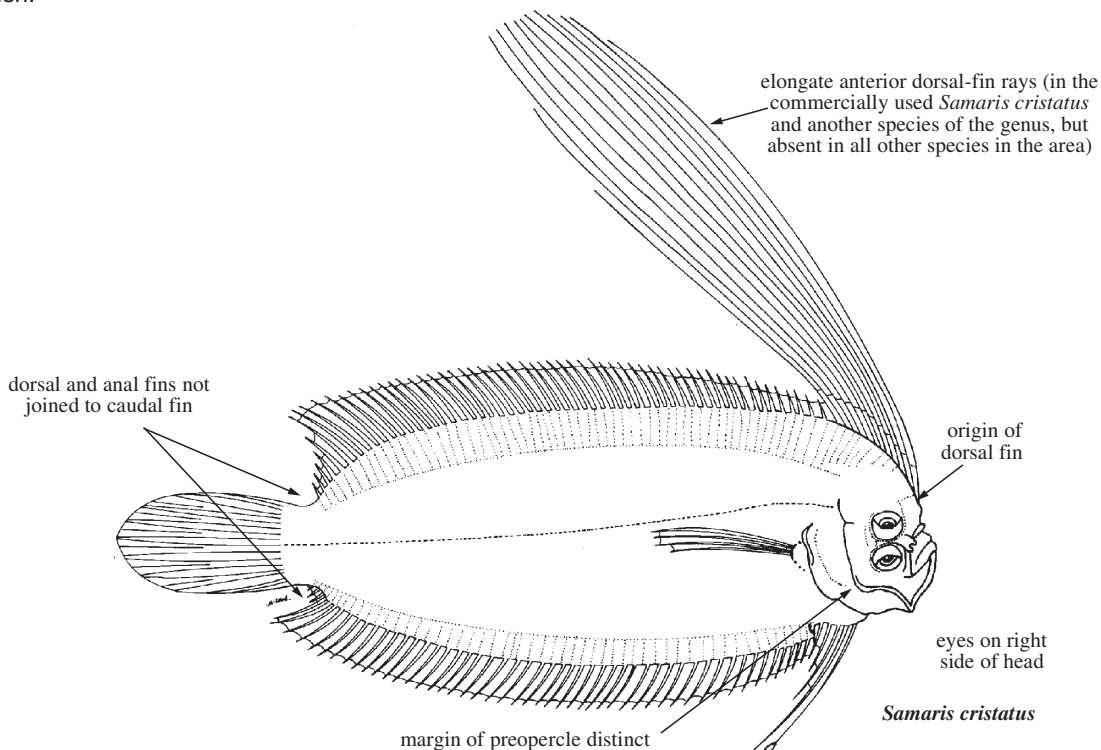


## PLEURONECTIDAE

### Rigthead flounders

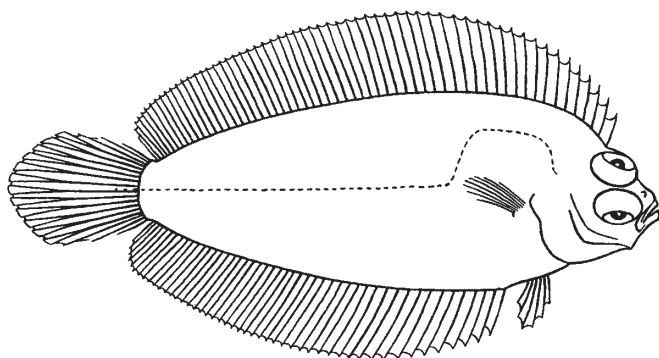
by D.A. Hensley

**Diagnostic characters:** Body oval-shaped or elongate, strongly compressed (size to about 22 cm). **Margin of preopercle distinct, not covered by skin and scales. Eyes on right side of head; reversals rare. Mouth and teeth small.** Gill rakers elongate, not tooth-like. **Dorsal-fin origin anterior to posterior margin of upper eye; no fin spines; urinary papilla on eyed side; caudal fin not attached to dorsal and anal fins; pectoral fin on blind side smaller than fin on eyed side or missing;** pelvic-fin bases short or somewhat elongate, fin on eyed side slightly anterior to that of blind side and closer to or on midventral line. Scales small; lateral line weakly developed or missing on blind side of body. **Colour:** body on eyed side variable in colour pattern, often with spots or blotches on body and fins; blind side whitish.



**Habitat, biology, and fisheries:** Most Indo-Pacific species are found at depths of about 60 to 500 m on soft bottoms composed of mixtures of mud, sand, silt, and crushed shells. Some shallow-water species occur as shallow as 6 m in or on sands around coral reefs. One species (*Samaris cristatus*) occurs in fairly shallow water and is marketed.

**Remarks:** Diagnostic characters given here for the family Pleuronectidae apply only to species from the Western Central Pacific. There are 2 groups of rigthead flounders in this region. These are often referred to as 2 families, the Samaridae and Poecilopsettidae.

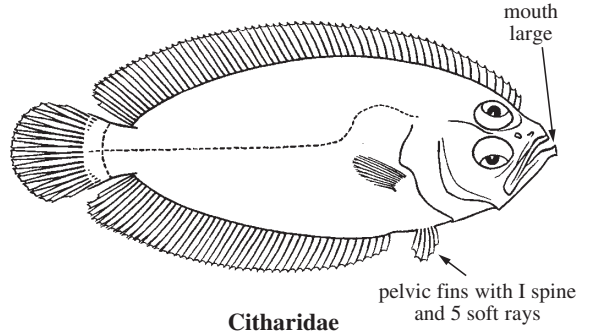
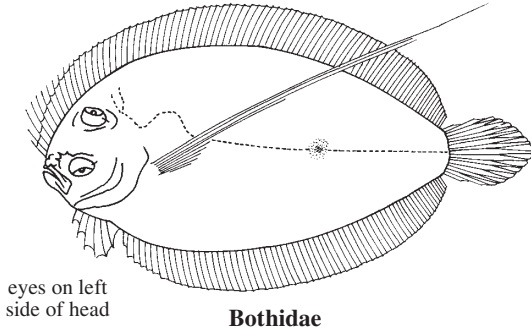


*Poecilopsetta praelonga*

### Similar families occurring in the area

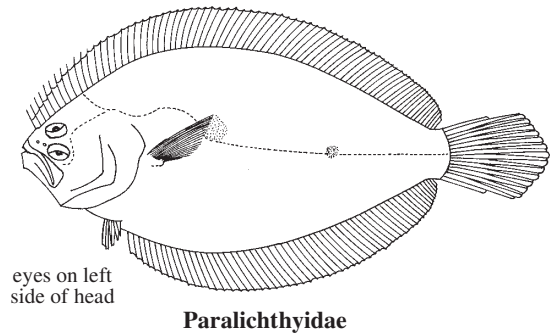
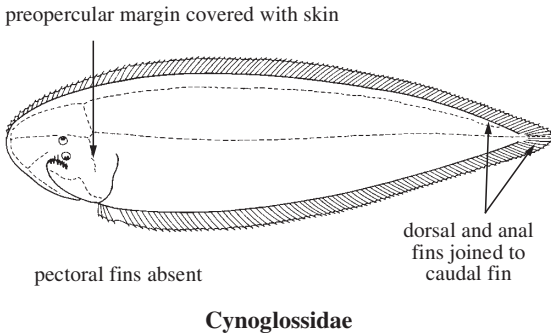
**Bothidae:** eyes on left side of head.

**Citharidae:** pelvic fins with I spine and 5 soft rays; mouth large, upper jaw reaching to or beyond middle of lower eye; eyes normally on left side of head in some species and right side of head in other species, reversals rare.



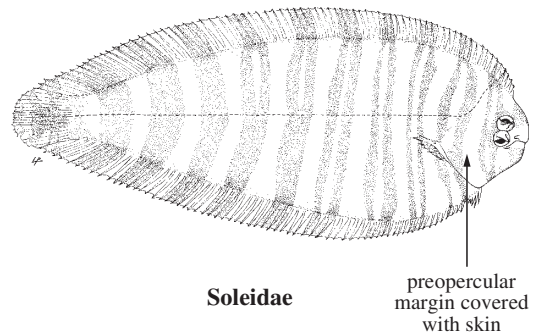
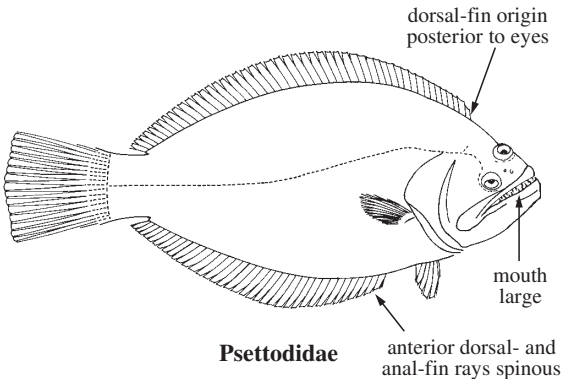
**Cynoglossidae:** dorsal and anal fins attached to pointed caudal fin; pectoral fins absent; only 1 pelvic fin; margin of preopercle not distinct, covered with skin and scales; rostral hook usually present below mouth; eyes on left side of head, reversals rare.

**Paralichthyidae:** eyes on left side of head, reversals rare.



**Psettodidae:** dorsal-fin origin well posterior to upper eye; spines in dorsal, anal, and pelvic fins; pectoral fins on eyed and blind sides about equal in length; body thick; mouth large, extending well beyond posterior margin of lower eye; urinary papilla on midventral line anterior to origin of anal fin; eyes on right or left side; upper eye on dorsal surface of head.

**Soleidae:** margin of preopercle not distinct, covered with skin and scales.



**Key to the genera of Pleuronectidae**

- 1a. Origin of dorsal fin above eyes (Fig. 1), behind nasal organ on blind side . . . . . → 2
- 1b. Origin of dorsal fin in front of eyes (Fig. 2), extending forward on snout to point above or below nasal organ of blind side . . . . . → 3
- 2a. No tentacles on eyes (Fig. 3) . . . . . *Poecilopsetta*
- 2b. Each eye with a tentacle (except tentacle possibly only present on lower eye in *N. chui*) (Figs 1 and 4) . . . . . *Nematops*

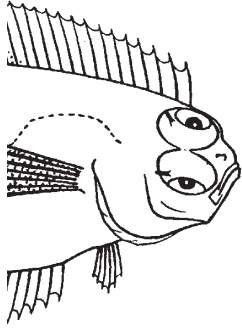


Fig. 1 *Nematops*

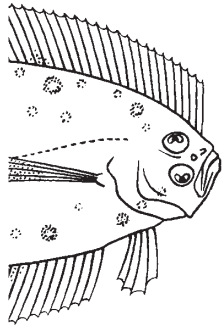


Fig. 2 *Samariscus*



Fig. 3 *Poecilopsetta*

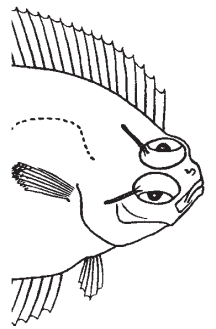


Fig. 4 *Nematops*

- 3a. Pectoral fin on eyed side with 7 to 10 rays (Fig. 5) . . . . . *Plagiopsetta*  
(a single species, *P. glossa*; known from Japan, Taiwan Province of China, and New South Wales and possibly occurs in the area)
- 3b. Pectoral fin on eyed side with 4 or 5 rays . . . . . → 4
- 4a. Anterior dorsal-fin rays and rays of pelvic fin on eyed side elongate and filamentous (Fig. 6); all caudal-fin rays unbranched . . . . . *Samaris*
- 4b. Anterior dorsal-fin rays and rays of pelvic fin on eyed side not elongate and filamentous (Fig. 7); middle caudal-fin rays branched . . . . . *Samariscus*

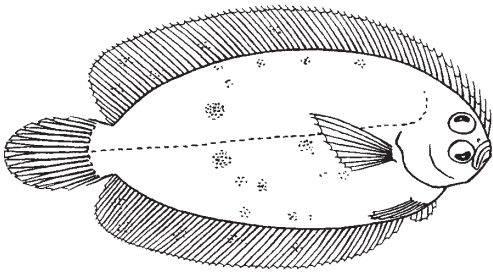


Fig. 5 *Plagiopsetta glossa*

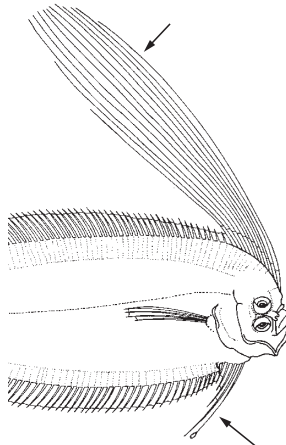


Fig. 6 *Samaris*

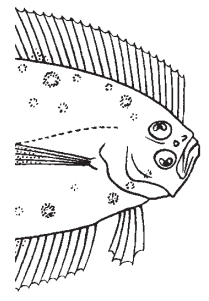


Fig. 7 *Samariscus*

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

- 1a. Lateral-line scales 44 to 48 . . . . . → 2
- 1b. Lateral-line scales 65 to 68 . . . . . → 3

- 2a. Body depth about 3 times in standard length; pectoral fin on eyed side about same length as head; possibly with a tentacle only on lower eye (Fig. 8) . . . . . *Nematops chui*
- 2b. Body depth 2.2 to 2.4 times in standard length; pectoral fin on eyed side only about 1/2 as long as head; 1 tentacle present on each eye (Fig. 9) . . . . . *Nematops grandisquama*

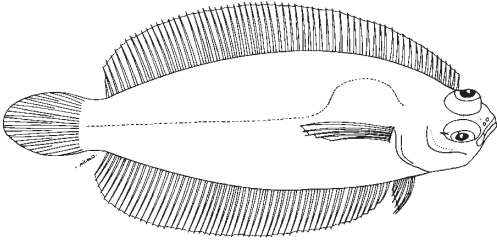


Fig. 8 *Nematops chui*

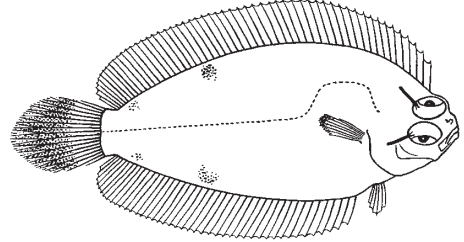


Fig. 9 *Nematops grandisquama*

- 3a. Body depth about 2.3 times in standard length; pectoral fin on eyed side shorter than head; caudal-fin rays 22 (Fig. 10) . . . . . *Nematops microstoma*
- 3b. Body depth 2.6 to 3 times in standard length; pectoral fin on eyed side longer than head; caudal-fin rays 20 (rarely 19) (Fig. 11) . . . . . *Nematops macrochirus*

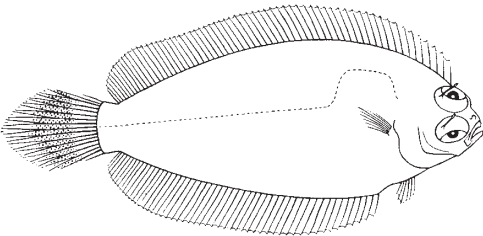


Fig. 10 *Nematops microstoma*

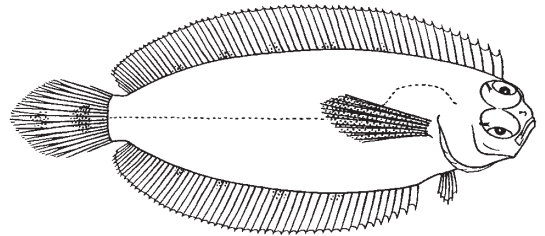


Fig. 11 *Nematops macrochirus*

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

- 1a. Lateral-line scales less than 70 . . . . . → 2
- 1b. Lateral-line scales 70 or more . . . . . → 3
  
- 2a. Lateral-line scales 55 or 56; upper-jaw length 3.2 times in head length (Fig. 12). *Poecilopsetta megalepis*
- 2b. Lateral-line scales 57 to 65; upper-jaw length 3.4 to 3.9 times in head length (Fig. 13) . . . . . *Poecilopsetta plinthus*  
 (presence in the area uncertain; unconfirmed record from the Philippines)
  
- 3a. Body depth 3.8 to 4 times in standard length; upper-jaw length 3.6 to 3.7 times in head length (Fig. 14) . . . . . *Poecilopsetta praelonga*
- 3b. Body depth 1.9 to 2.6 times in standard length; upper-jaw length 3 to 3.5 times in head length . . . . . → 4

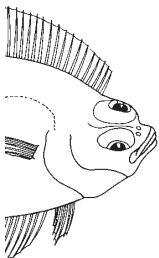


Fig. 12 *Poecilopsetta megalepis*

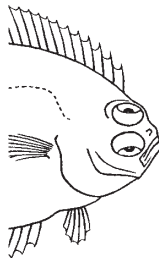


Fig. 13 *Poecilopsetta plinthus*

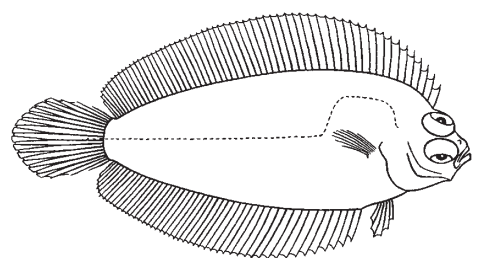


Fig. 14 *Poecilopsetta praelonga*

- 4a. Lateral-line scales 90 to 109; eyes separated by a narrow ridge (Fig. 15) . . . *Poecilopsetta colorata*
- 4b. Lateral-line scales about 70; eyes nearly touching each other (Fig. 16) . . . *Poecilopsetta natalensis*  
(Indian Ocean, 1 unconfirmed record from Taiwan Province of China; not yet recorded from the area)

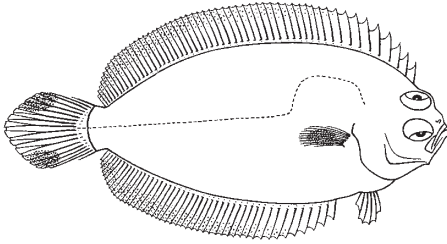


Fig. 15 *Poecilopsetta colorata*

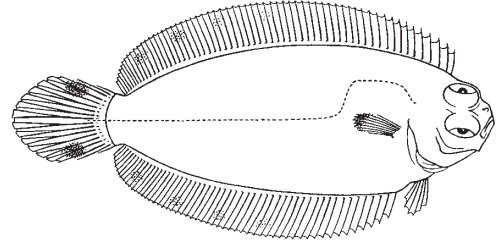


Fig. 16 *Poecilopsetta natalensis*

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

- 1a. At least the first 10 (usually 12 to 15) dorsal-fin rays greatly elongate, about 4 or 5 times head length (Fig. 17) . . . . . *Samaris cristatus*
- 1b. Only about the first 8 dorsal-fin rays elongate, the longest about 2.5 times head length (Fig. 18) . . . . . *Samaris macrolepis*  
(presence in the area uncertain; unconfirmed record from New Caledonia)

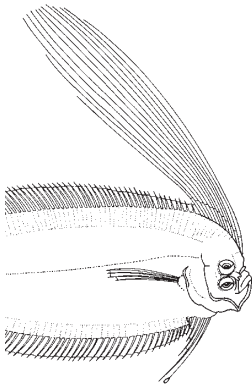


Fig. 17 *Samaris cristatus*

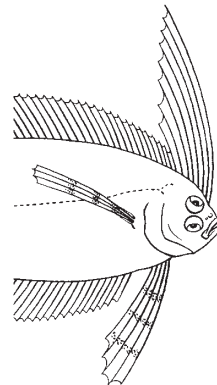


Fig. 18 *Samaris macrolepis*

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

- 1a. Pectoral fin on eyed side at least twice as long as head (Fig. 19) . . . . . *Samariscus sunieri*
- 1b. Pectoral fin on eyed side shorter than twice length of head . . . . . → 2
- 2a. Colour pattern on eyed side with 2 or 3 dark rings about size of eye on or immediately below lateral line (Fig. 20) . . . . . *Samariscus triocellatus*
- 2b. Colour pattern on eyed side without dark rings about size of eye on or immediately below lateral line . . . . . → 3

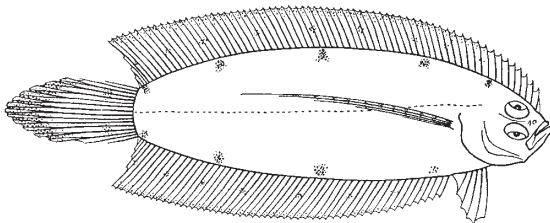


Fig. 19 *Samariscus sunieri*

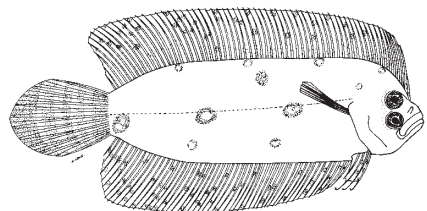


Fig. 20 *Samariscus triocellatus*



- 3a. Pectoral fin on eyed side much longer than head, about 0.6 times in head length . . . . . → 4
- 3b. Pectoral fin on eyed side shorter or about same length as head, 0.9 to 1.3 times in head length . . . . . → 5
  
- 4a. Upper jaw reaching to middle of lower eye, length about 2 times in head length; head length about 3.8 times in standard length (Fig. 21) . . . . . *Samariscus macrognathus*
- 4b. Upper jaw reaching to below anterior quarter of lower eye, length 2.8 to 3.3 times in head length; head length 4.4 to 5.2 times in standard length (Fig. 22) . . . . . *Samariscus latus*  
(presence in the area uncertain; unconfirmed record from New Caledonia)

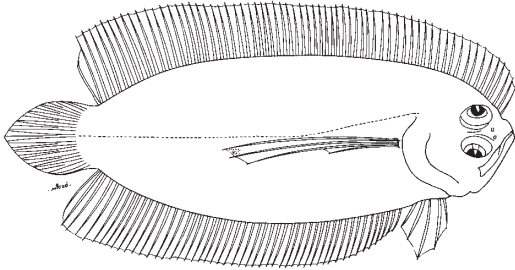


Fig. 21 *Samariscus macrognathus*

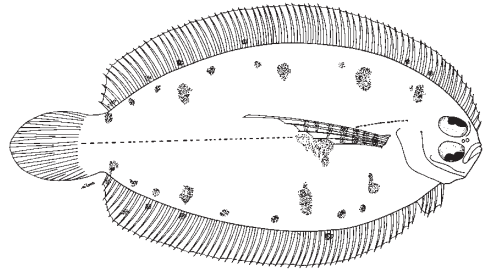


Fig. 22 *Samariscus latus*

- 5a. Lateral-line scales about 50 (Fig. 23) . . . . . *Samariscus luzonensis*
- 5b. Lateral-line scales 60 to 83 . . . . . → 6
  
- 6a. Head length 4.4 to 4.7 times in standard length (Fig. 24) . . . . . *Samariscus huysmani*
- 6b. Head length 3.7 to 4 times in standard length . . . . . → 7

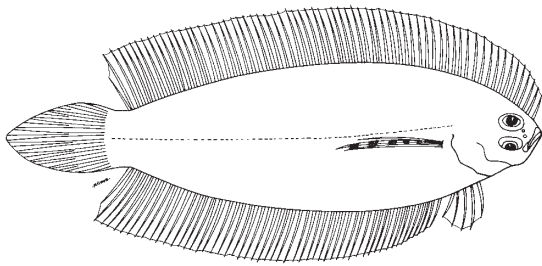


Fig. 23 *Samariscus luzonensis*

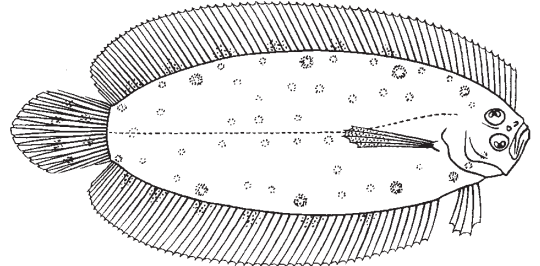


Fig. 24 *Samariscus huysmani*

- 7a. Lateral-line scales 71 to 83 (Fig. 25) . . . . . *Samariscus nielseni*
- 7b. Lateral-line scales about 62 (Fig. 26) . . . . . *Samariscus maculatus*

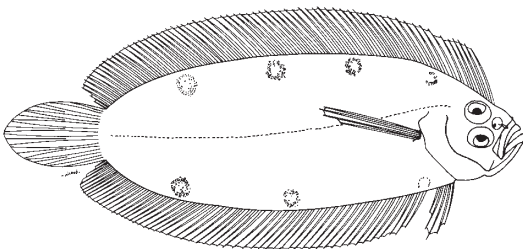


Fig. 25 *Samariscus nielseni*

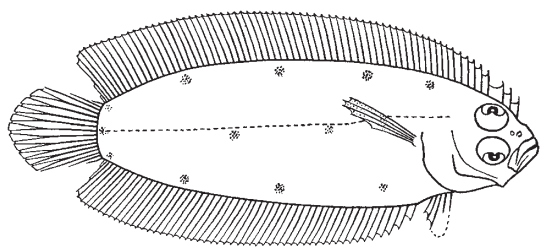























Fig. 26 *Samariscus maculatus*

### 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.

-  *Nematops chui* Fowler, 1934
-  *Nematops grandisquama* Weber and Beaufort, 1929
-  *Nematops macrochirus* Norman, 1931
-  *Nematops microstoma* Günther, 1880
-  ? *Plagiopsetta glossa* Franz, 1910
-  *Poecilopsetta colorata* Günther, 1880
-  *Poecilopsetta megalepis* Fowler, 1934
-  ? *Poecilopsetta natalensis* Norman, 1931
-  ? *Poecilopsetta plinthus* (Jordan and Starks, 1904)
-  *Poecilopsetta praelonga* Alcock, 1894
-  *Samaris cristatus* Gray, 1831
-  ? *Samaris macrolepis* Norman, 1927
-  *Samariscus huysmani* Weber, 1913
-  ? *Samariscus latus* Matsubara and Takamuki, 1951
-  *Samariscus luzonensis* Fowler, 1934
-  *Samariscus macrognathus* Fowler, 1934
-  *Samariscus maculatus* (Günther, 1880)
-  *Samariscus nielseni* Quéro, Hensley, and Maugé, 1989
-  *Samariscus sunieri* Weber and Beaufort, 1929
-  *Samariscus triocellatus* Woods, 1966

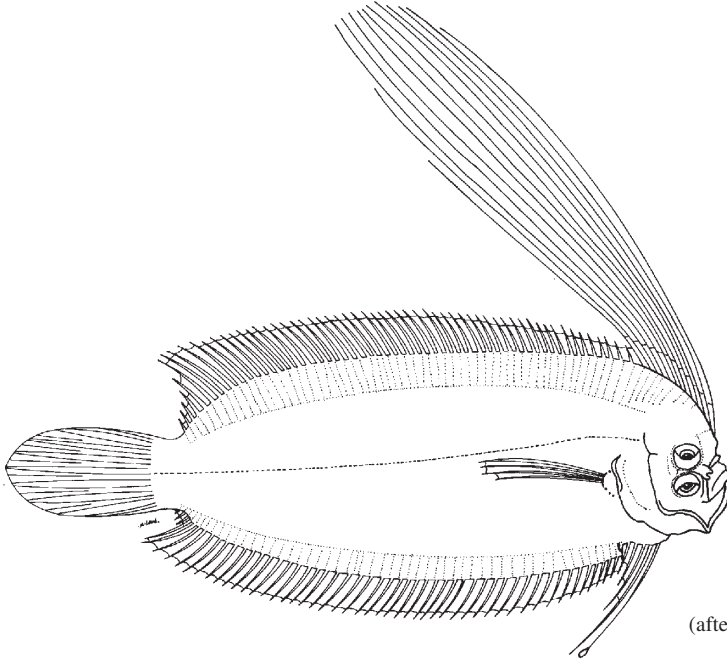
### References

- Fowler, H.W. 1934. Description of new fishes obtained 1907 to 1910, chiefly in the Philippine Islands and adjacent sea. *Proc. Acad. Nat. Sci. Philad.*, 85:233-367.
- Norman, J.R. 1934. A systematic monograph of the flatfishes (*Heterosomata*). 1. Psettodidae, Bothidae, Pleuronectidae. *Brit. Mus., London*, (8):459 pp.
- Quéro, J.-C., D.A. Hensley, and A.L. Maugé. 1988. Pleuronectidae de l'île de la Réunion et de Madagascar. I. *Peecilopsetta*. *Cybium*, 12(4):321-330.
- Quéro, J.-C., D.A. Hensley, and A.L. Maugé. 1989. Pleuronectidae de l'île de la Réunion et de Madagascar. II. Genres *Samaris* et *Samariscus*. *Cybium*, 13(2):105-114.

*Samaris cristatus* Gray, 1831

**Frequent synonyms / misidentifications:** *Samaris cacatae* Ogilby, 1910; *S. ornatus* von Bonde, 1922; *S. delagoensis* von Bonde, 1925 / None.

**FAO names:** En - Cockatoo righteye flounder.



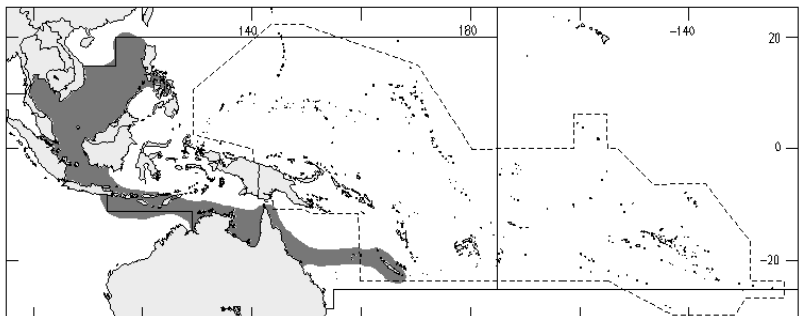
(after Chabanaud, 1969)

**Diagnostic characters:** Body elongate, strongly compressed. Head short, blunt, with short snout and indentation ahead of upper eye; head length 3.7 to 5.5 into standard length. **Both eyes on right side of head.** Upper jaw small and oblique; length of upper jaw 2.6 to 3.4 times in head length; lower jaw slightly projecting. Teeth small and in narrow bands. Gill rakers rudimentary, 2 to 5 on upper limb of first gill arch, 7 to 11 on lower limb. **Dorsal-fin origin anterior to upper eye on blind side of snout;** dorsal-fin rays 73 to 88; **first 12 to 15 (rarely 10 or 11) dorsal-fin rays greatly elongate, about 4 or 5 times longer than head;** anal-fin rays 49 to 60; **caudal fin with 16 unbranched rays and rounded margin;** **pectoral fin on eyed side with 4 rays, pectoral fin on blind side missing or rudimentary;** **both pelvic fins with 5 soft rays, those on eyed side elongate.** Scales ctenoid on eyed side, more weakly ctenoid or cycloid on blind side; lateral line on eyed side nearly straight, without supratemporal branch, with 63 to 82 scales; lateral line of blind side absent or rudimentary. Intermuscular bones present. **Colour:** body on eyed side brownish with darker spots and blotches; a series of blotches along dorsal and ventral body margins; elongate anterior dorsal-fin rays white, remainder of dorsal fin, anal fin, and caudal fin brown; pectoral fin dark; blind side of body whitish.

**Size:** Maximum total length about 22 cm, most commonly 15 to 17 cm.

**Habitat, biology, and fisheries:** Lives on sandy bottoms at depths of about 20 to 70 m. Feeds on small bottom-living animals. Marketed in the Philippines. Caught with trawls.

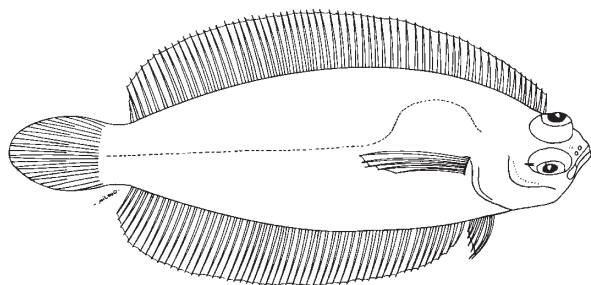
**Distribution:** Known throughout the Indian Ocean, to Taiwan Province of China, South China Sea, Philippines, Indonesia, northern Australia, Great Barrier Reef, and New Caledonia.



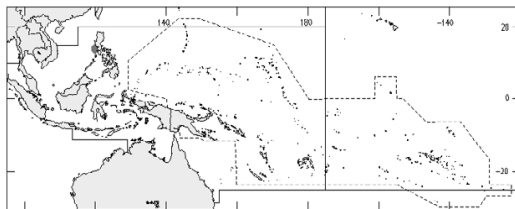


***Nematops chui* Fowler, 1934****En** - Narrowbody righteye flounder.

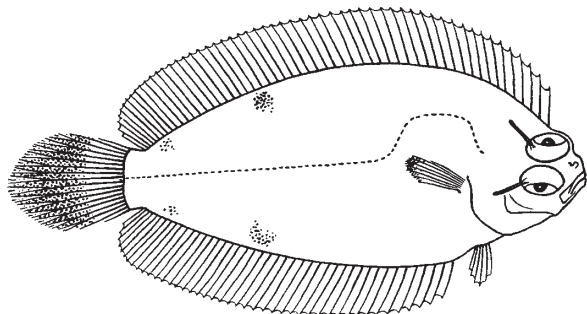
Maximum total length about 8 cm. Known from a depth of 270 m. Feeds on small bottom-living animals. Rarely collected. Apparently not marketed. Known only from near entrance to Manila Bay, Philippines.



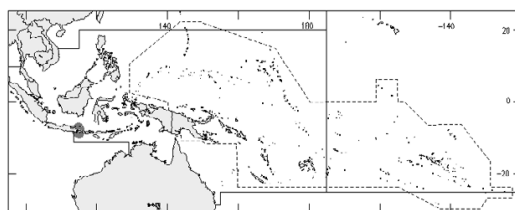
(after Fowler, 1934)

***Nematops grandisquama* Weber and Beaufort, 1929****En** - Largescale righteye flounder.

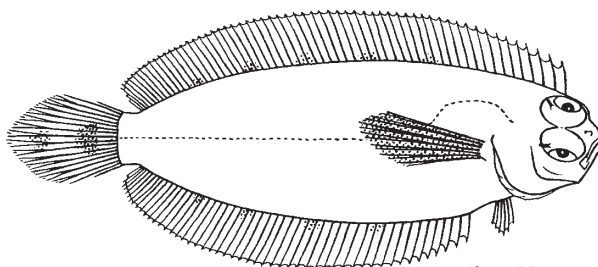
Maximum total length about 9 cm. Known from depths of 108 to 180 m. Feeds on small bottom-living animals. Rarely collected. Apparently not marketed. Known from Bali and possibly the southwest coast of India.



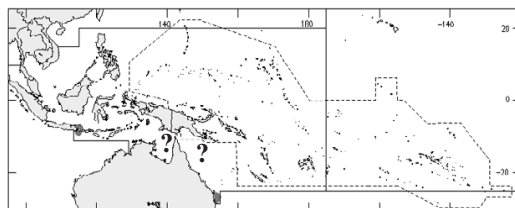
(from Norman, 1934)

***Nematops macrochirus* Norman, 1931****En** - Longfin righteye flounder.

Maximum total length about 15 cm. Known from depths of 218 to 438 m. Feeds on small bottom-living animals. Rarely collected. Apparently not marketed. Known from Bali Strait, north part of New South Wales, Australia in the Indo-West Pacific region; record from St. Helena in Atlantic Ocean erroneous.



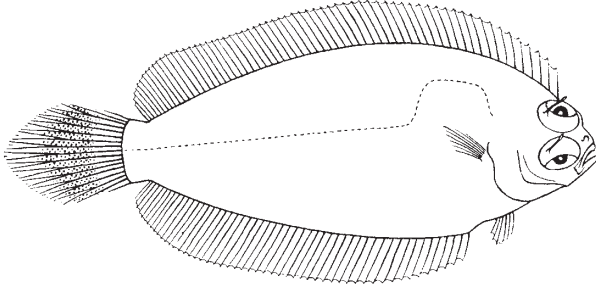
(from Norman, 1934)



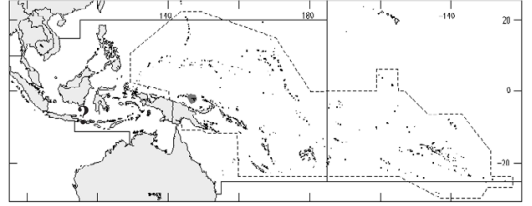
***Nematops microstoma* Günther, 1880**

**En** - Smallmouth righteye flounder.

Maximum total length about 10 cm. Known from a depth of 304 m. Feeds on small bottom-living animals. Rarely collected. Apparently not marketed. Known only from Nares Harbor, Admiralty Islands.



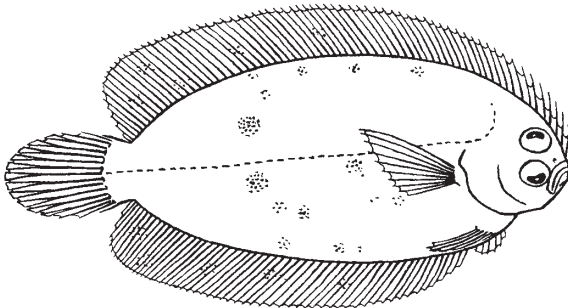
(from Norman, 1934)



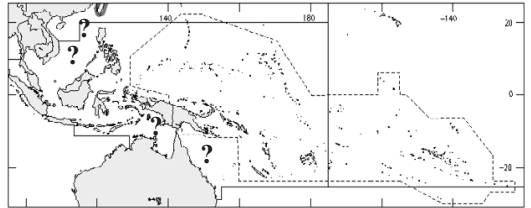
***Plagiopsetta glossa* Franz, 1910**

**En** - Tongue flatfish.

Maximum total length 19 cm. Known from depths of 65 to 154 m. Feeds on small bottom-living animals. Rare. Apparently not marketed. Known from Japan, Taiwan Province of China, and New South Wales, Australia; possibly occurs in the area.



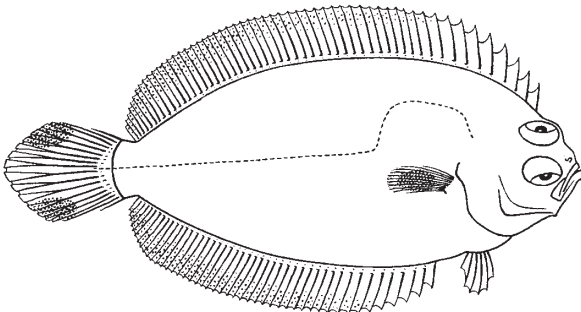
(from Norman, 1934)



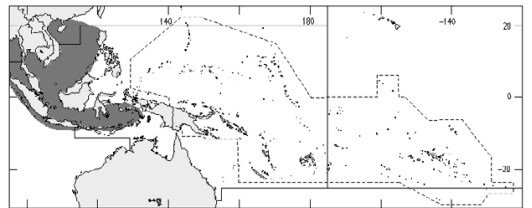
***Poecilopsetta colorata* Günther, 1880**

**En** - Coloured righteye flounder.

Maximum total length about 17 cm. Known from depths of 228 to 800 m. Feeds on small bottom-living animals. Rare. Apparently not marketed. Known from eastern Indian Ocean to South China Sea and Indonesia.

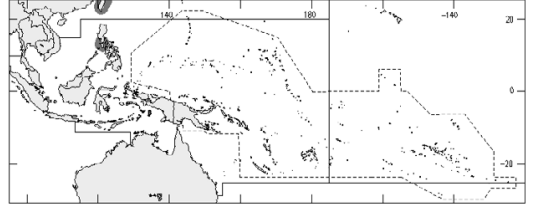
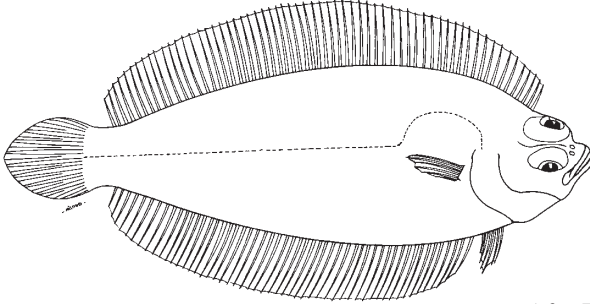


(from Norman, 1934)



***Poecilopsetta megalepis* Fowler, 1934****En** - Fowler's largescale righteye flounder.

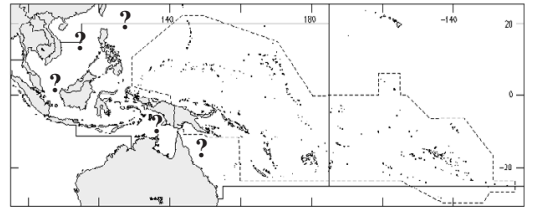
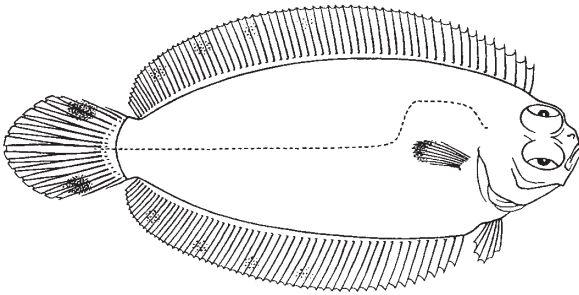
Maximum total length about 15 cm. Known from a depth of 236 m. Feeds on small bottom-living animals. Very rare. Apparently not marketed. Known only from the Philippines and Taiwan Province of China.



(after Fowler, 1934)

***Poecilopsetta natalensis* Norman, 1931****En** - African righteye flounder.

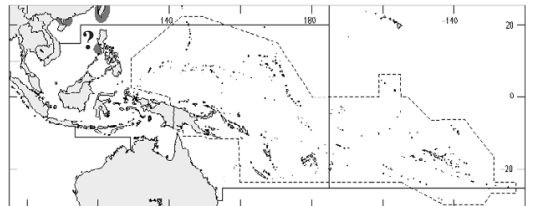
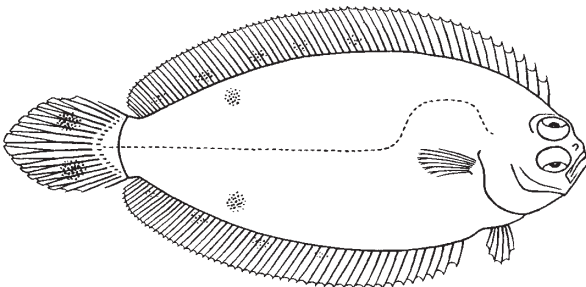
Maximum total length about 15 cm. Known from depths of 250 to 450 m. Feeds on small bottom-living animals. Apparently not marketed. Known from the Indian Ocean; based on unconfirmed record from Taiwan Province of China, the species possibly occurs in the area.



(from Norman, 1934)

***Poecilopsetta plinthus* (Jordan and Starks, 1904)****En** - Tilecolored righteye flounder.

Maximum total length about 19 cm. Known from depths of 60 to 400 m on sand-mud bottoms. Feeds on small bottom-living animals. Apparently not marketed. Known from Japan, Taiwan Province of China, and China mainland near Hainan; based on unconfirmed record from Manila Bay, Philippines, the species possibly occurs in the area.



(from Norman, 1934)