Order PLEURONECTIFORMES

PSETTODIDAE

Spiny turbots

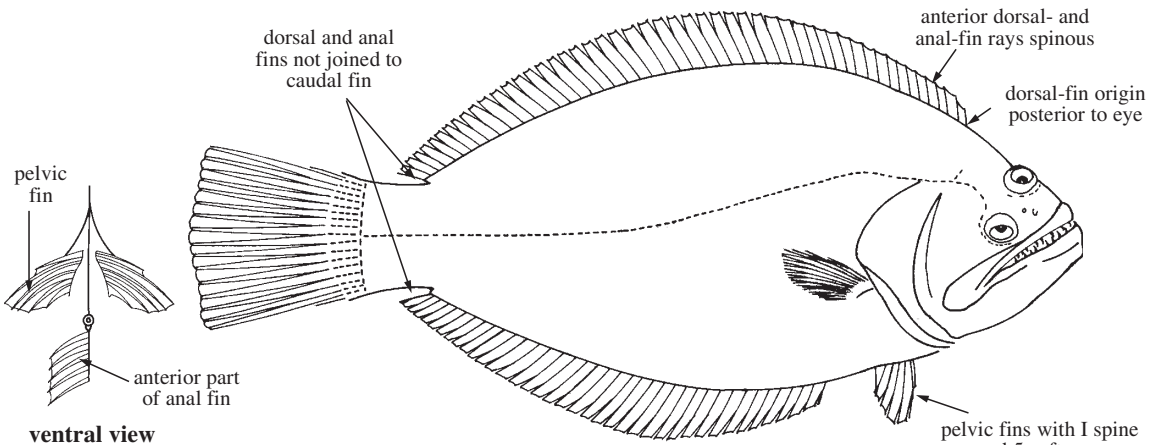
by D.A. Hensley

A single species occurring in the area.

Psettodes erumei (Bloch and Schneider, 1801) HAI

Frequent synonyms / misidentifications: None / None.

FAO names: En - Indian halibut; **Fr** - Turbot épineux-indien; **Sp** - Lenguado espinudo-indio.



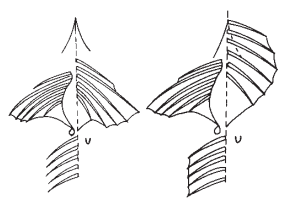
ventral view of pelvic fins

(after Norman, 1934)

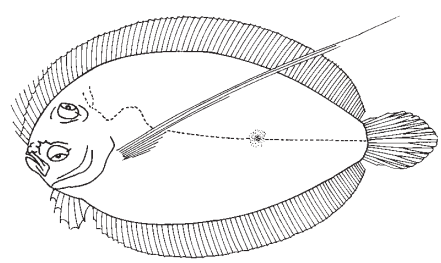
Diagnostic characters: Body oval-shaped, flat but fairly thick; caudal peduncle deeper than long. Head length 3.2 to 3.6 times in standard length. Both eyes on right or left side of head; **upper eye on dorsal surface of head. Supramaxillary bone well developed**. Mouth large, extending well beyond posterior margin of lower eye; lower jaw projecting. Teeth large canines, many with barbed tips. **Vomer and palatines with teeth. Preopercular margin easily seen, not hidden by skin or scales**. Gill rakers tooth-like. **Dorsal-fin origin well posterior to upper eye**; dorsal-fin rays 48 to 56; anal-fin rays 34 to 44; **anterior rays of dorsal and anal fins spinous**; urinary papilla and anus on midventral line anterior to origin of anal fin; **caudal fin free from dorsal and anal fins**, with truncate or double truncate posterior margin with 24 or 25 rays; pectoral fins on eyed and blind sides nearly equal in length, both with 13 to 16 rays; **pelvic fins with I spine and 5 soft rays**, and nearly symmetrically placed on each side of midventral line. Scales small, weakly ctenoid on both sides of body; lateral line present on both sides of body, only slightly curved above pectoral fin, with 61 to 77 scales, with no supratemporal branch, branch present below lower eye; scales around caudal peduncle 32 to 38. Epipleural and pleural ribs present. **Colour:** body on eyed side generally brownish or greyish, sometimes with 4 or 5 broad dark cross bands; dorsal, anal, and posterior area of caudal fin darker; blind side of body pale brownish, but occasionally partly coloured.

Similar families occurring in the area

Bothidae: dorsal-fin origin anterior to upper eye; no spines in fins; lateral line with high arch over pectoral fin, no lateral line below lower eye; pelvic fin on eyed side on midventral line with origin anterior to that of pelvic fin of blind side, pelvic fin of blind side above midventral line; urinary papilla on eyed side; eyes nearly always on left side of head, reversals rare.



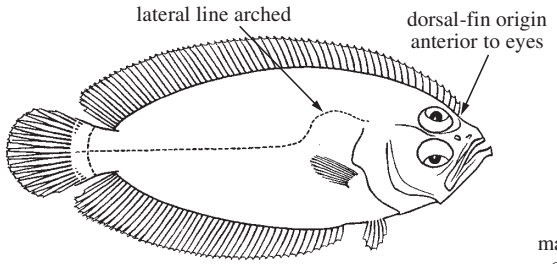
ventral views of pelvic fins



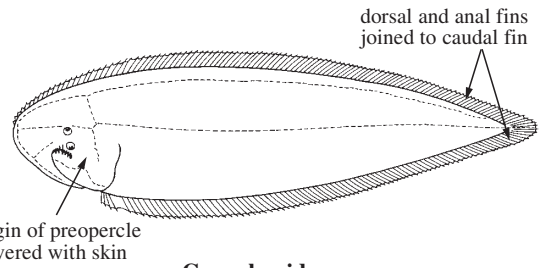
Bothidae

Citharidae: dorsal-fin origin anterior to posterior margin of upper eye; no spines in dorsal and anal fins; lateral line with high arch over pectoral fin; gill rakers elongate, not tooth-like; eyes normally on left side of head in some species and right side of head in other species, reversals rare.

Cynoglossidae: dorsal-fin origin anterior to posterior margin of upper eye; no fin spines; dorsal and anal fins joined to pointed caudal fin; only 1 pelvic fin in most species; pectoral fins absent; margin of preopercle not distinct, covered with skin and scales; lower jaw not protruding, rostral hook present below mouth (except in *Symphurus*); eyes on left side of head, reversals rare.



Citharidae

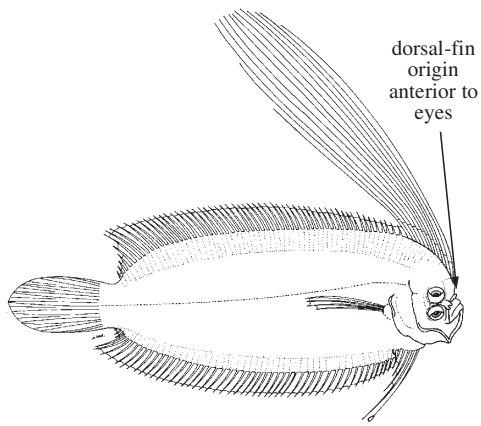


Cynoglossidae

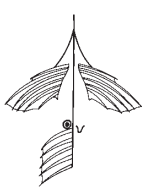
Paralichthyidae: dorsal-fin origin anterior to posterior margin of upper eye; no fin spines; lateral line with high arch over pectoral fin, supratemporal branch of lateral line present in Indo-Pacific species; urinary papilla on eyed side in Indo-Pacific species; eyes nearly always on left side of head in Indo-Pacific species, reversals rare.

Pleuronectidae: dorsal-fin origin anterior to posterior margin of upper eye; no fin spines; urinary papilla on eyed side; eyes nearly always on right side of head in Indo-Pacific species, reversals rare. Anterior dorsal-fin rays and rays of pevic fin on eyed side greatly elongate in *Samaris*, the only genus with a commercial species in the area, but not in the majority of species.

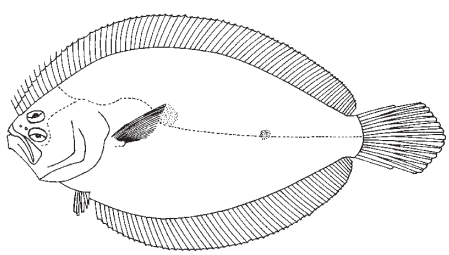
Soleidae: dorsal-fin origin anterior to posterior margin of upper eye; no fin spines; margin of preopercle not distinct, covered with skin and scales; lower jaw not protruding; eyes on right side of head.



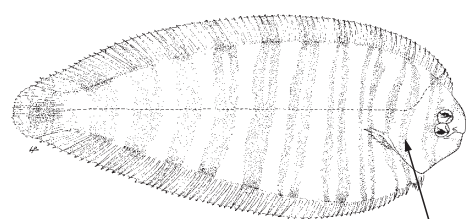
Pleuronectidae



ventral view of pelvic fins



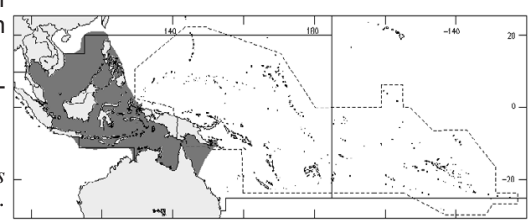
Paralichthyidae



Soleidae

Size: Maximum total length about 60 cm, most commonly between 20 and 40 cm.

Habitat, biology, and fisheries: Lives on mud and sand bottoms at depths of 1 to 100 m; most frequently caught at approximately 20 to 50 m. Often swims in an upright position. Feeds predominately on fishes, including some pelagic species. Usually marketed fresh. Caught mainly with trawls. From 1990 to 1995, the FAO Yearbook of Fishery Statistics reports a range of yearly catch of 1 952 to 6 372 t of *Psettodes erumei* from the Western Central Pacific (Indonesia, Thailand).



Distribution: Indo-West Pacific from South Africa to Australia and Japan.

Reference

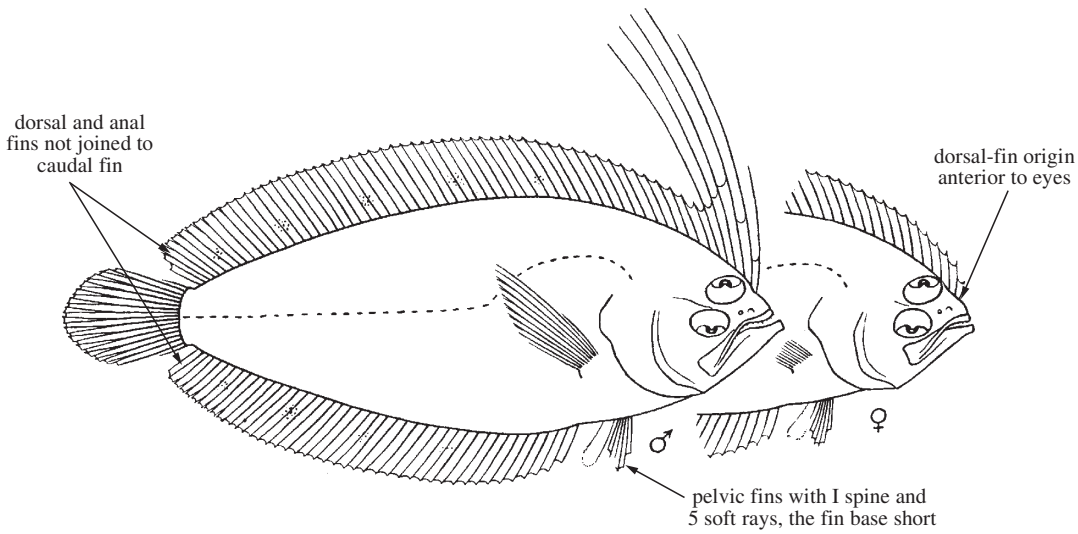
Stauch, A. and J. Cadenat. 1965. Révision du genre *Psettodes* Bennett 1831 (Pisces: Teleostei, Heterosomata). *Cah. ORSTOM Oceanogr.*, 3(4):19-30.

CITHARIDAE

Largescale flounders

by D.A. Hensley

Diagnostic characters: Body elliptical, moderately compressed (size to 36 cm). **Margin of preopercle distinct, not covered by skin and scales. Eyes on left side of head in some species, on right side of head in others, reversals rare.** Mouth large, arched; teeth not greatly enlarged. Gill rakers slender with small spines. **Dorsal-fin origin on blind side above or anterior to anterior margin of upper eye; dorsal and anal fins without spines**; urinary papilla on eyed side; **caudal fin not attached to dorsal and anal fins**; caudal fin with 21 to 23 rays, 13 to 15 branched; a pectoral fin on both sides of body, with 9 to 13 rays on eyed side, 10 to 13 on blind side; **both pelvic fins with short bases, I spine, and 5 soft rays**. Scales large, ctenoid on eyed side, cycloid or weakly ctenoid on blind side; lateral line with high arch over pectoral fins, usually developed on both sides of body. **Colour:** eyed side with some spotting on body and fins; blind side whitish.

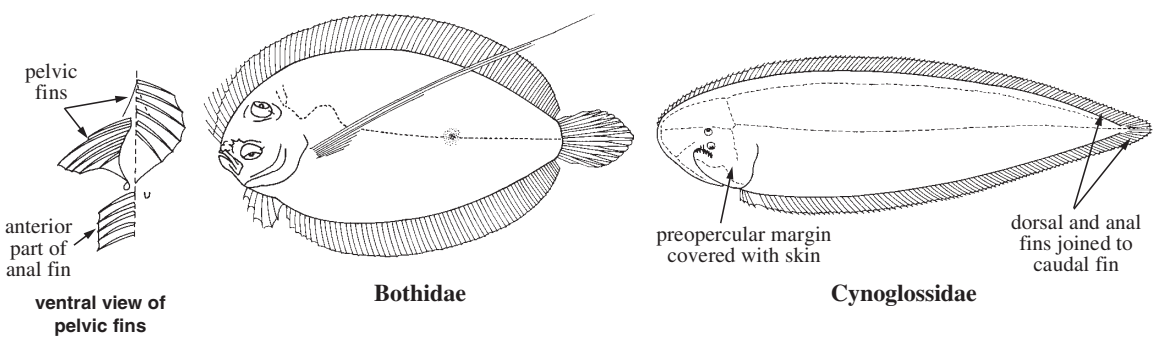


Habitat, biology, and fisheries: Found mostly on sandy bottoms. Usually collected using trawls. Feeds on bottom-living animals. A single species in the area marketed (*Brachypleura novaezeelandiae*).

Similar families occurring in the area

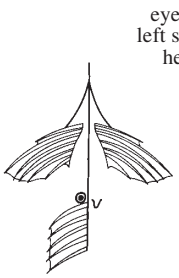
Bothidae: eyes on left side of head; pelvic fins without spines; left pelvic fin with long base on midventral line; caudal fin usually with 17 rays.

Cynoglossidae: dorsal and anal fins attached to pointed caudal fin; pectoral fins absent in adults; only 1 pelvic fin with 4 soft rays and no spines in most species; margin of preopercle not distinct, covered with skin and scales; rostral hook present below mouth (except in *Symphurus*); no high arch in lateral line; caudal fin with 8 to 14 rays, none branched.

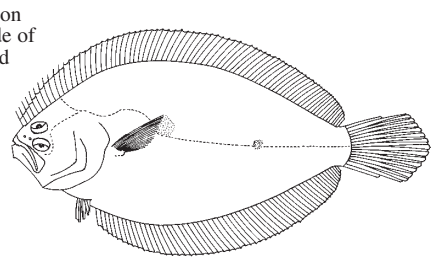


Paralichthyidae: eyes on left side of head, reversals rare; pelvic fins without spines; caudal fin with 17 or 18 rays.

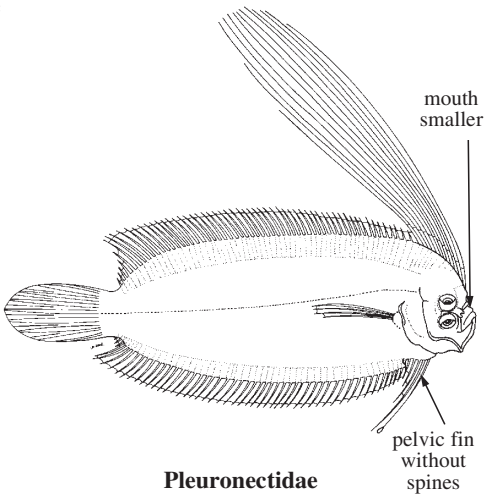
Pleuronectidae: eyes on right side of head; pelvic fins without spines; mouth small, not reaching to middle of lower eye. Anterior dorsal-fin rays and rays of pevic fin on eyed side greatly elongate in *Samaris*, the only genus with a commercial species in the area, but not in the majority of species.



ventral view of pelvic fins



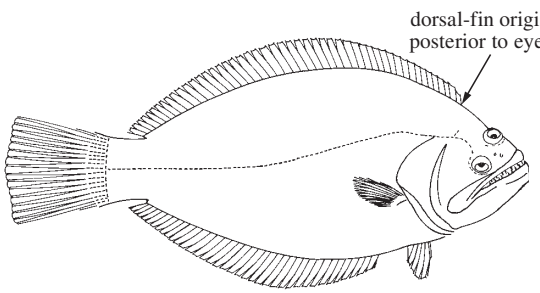
Paralichthyidae



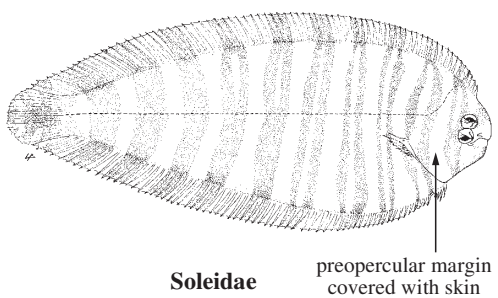
Pleuronectidae

Psettodidae: dorsal-fin origin well posterior to upper eye; spines in dorsal and anal fins; mouth extending well beyond posterior margin of lower eye; no high arch in lateral line over pectoral fin; gill rakers tooth-like; upper eye on top of head.

Soleidae: margin of preopercle not distinct, covered with skin and scales; pelvic fins with 4 or 5 soft rays, no spines; mouth small; eyes on right side of head.



Psettodidae



Soleidae

Key to the species of Citharidae occurring in area

1a. Eyes normally on left side of head; all dorsal-, anal-, and pelvic-fin rays branched; distinct dark spot near bases of last dorsal- and anal-fin rays (Fig. 1) . . . . . ***Citharoides macrolepidotus***

1b. Eyes on right side of head; only posterior dorsal- and anal-fin rays branched, at least anterior pelvic-fin rays unbranched; no distinct dark spot near bases of last dorsal- and anal-fin rays . . . . . → ***2***

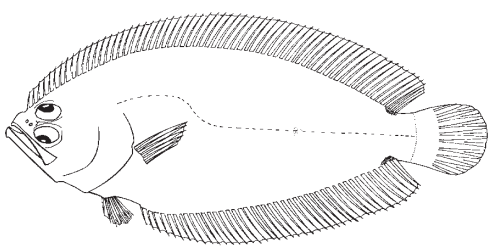


Fig. 1 ***Citharoides macrolepidotus***

2a. Anterior margin of upper eye ahead of anterior margin of lower eye; less than 35 scales in lateral line; eyes, interorbital area, snout, and jaws without scales; caudal fin with 13 or 14 branched rays (Fig. 2) . . . . . ***Brachypleura novaezeelandiae***

2b. Anterior margins of both eyes at about same level; more than 50 scales in lateral line; eyes, interorbital area, snout, and jaws scaly; caudal fin with 15 branched rays (Fig. 3) . . . . . ***Lepidoblepharon ophthalmolepis***

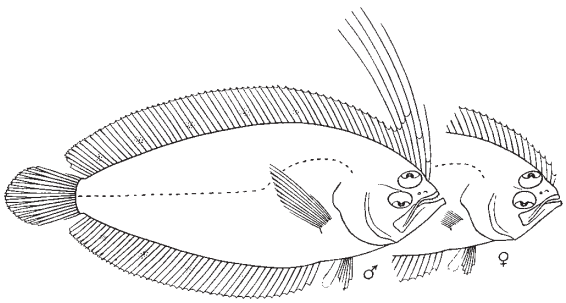


Fig. 2 ***Brachypleura novaezeelandiae***

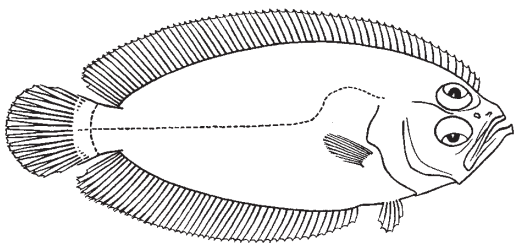


Fig. 3 ***Lepidoblepharon ophthalmolepis***

List of species occurring in area

The symbol is given when species accounts are included.

Brachypleura novaezeelandiae Günther, 1862

Citharoides macrolepidotus Hubbs, 1915

Lepidoblepharon ophthalmolepis Weber, 1913

References

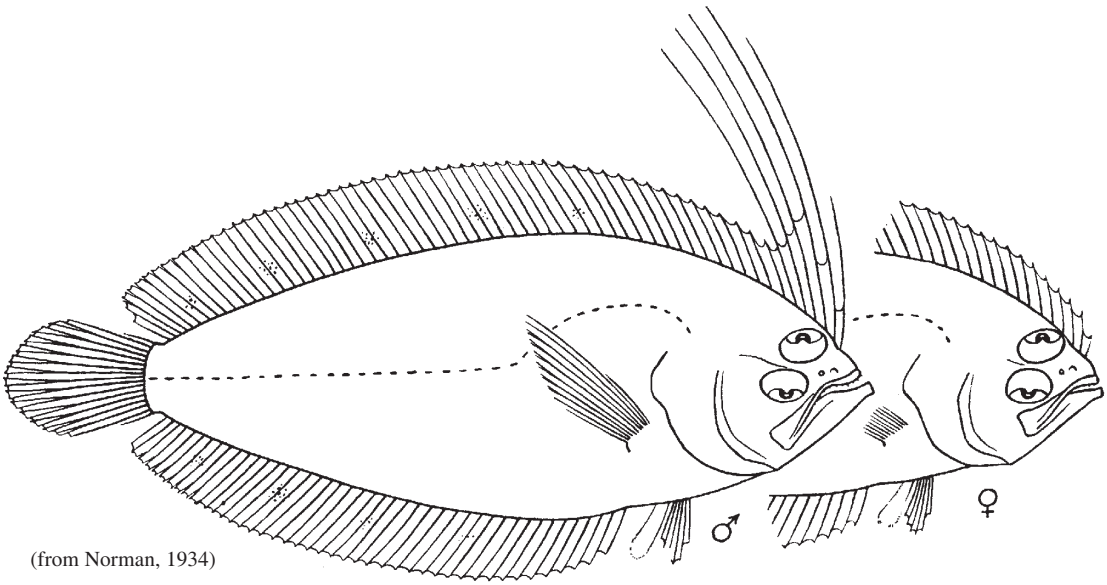
Amaoka, K. 1969. Studies on the sinistral flounders found in the waters around Japan - taxonomy, anatomy, and phylogeny. *J. Shimonoseki Univ. Fish.*, 18(2):1-340.

Hubbs, C.L. 1945. Phylogenetic position of Citharidae, a family of flatfishes. *Misc. Publ. Mus. Zool. Univ. Michigan*, (63):38 p.

Brachypleura novaezeelandiae Günther, 1862

Frequent synonyms / misidentifications: None / None.

FAO names: En - Widemouth largescale flatfish.



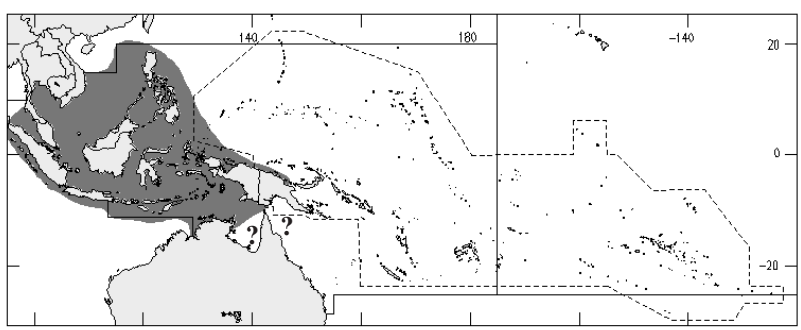
(from Norman, 1934)

Diagnostic characters: Body elliptical; body depth 2.2 to 2.7 times in standard length. Head large, snout as long as or slightly shorter than eye; head length 3 to 3.6 times in standard length; interorbital region a narrow, bony ridge. **Both eyes on right side of head, front margin of upper eye anterior to front margin of lower eye.** Mouth large, arched, reaching to or somewhat behind middle of lower eye, but not to rear margin of lower eye; length of upper jaw 1.8 to 2 times in head length; anterior tip of upper jaw fitting into indentation in tip of lower jaw; lower jaw protruding when mouth is closed and with a bony knob below tip. Teeth in both jaws biserial and pointed; anterior teeth in upper jaw enlarged; outer row of teeth in lower jaw larger than teeth in inner row; prominent teeth in roof of mouth (vomerine teeth). Gill rakers slender, long, and with small spines, 5 or 6 on upper branch of gill arch, 7 to 10 gill rakers on lower branch. **Dorsal-fin rays 65 to 77, some anterior rays elongate in males, not in females, all rays except a few at posterior end of fin unbranched; anal-fin rays 41 to 50, all rays except a few at posterior end of fin unbranched; caudal fin with 13 or 14 branched rays** and rounded margin; pectoral fin on eyed side with 11 to 13 rays; pectoral fin on blind side with 10 to 13 rays; **pelvic fins with I spine, 1 unbranched ray, and 4 branched rays**. Scales large and deciduous, ctenoid on eyed side, cycloid or weakly ctenoid on blind side; **lateral line with 28 to 33 scales**; eyes, interorbital ridge, snout, and jaws without scales. **Colour:** ground colour yellowish or yellowish brown; dorsal, anal, and caudal fins paler than body with dark spots; spots on dorsal and anal fins near middle of rays. Blind side whitish.

Size: Maximum total length 14 cm; most specimens not larger than about 12 cm.

Habitat, biology, and fisheries: Lives on sand and mud bottoms at depths of 18 to 73 m. Frequently collected in areas near river mouths. Feeds on bottom-living animals. Caught with trawls. Marketed fresh. Mostly used in making fish meal. Discarded as bycatch from some trawlers.

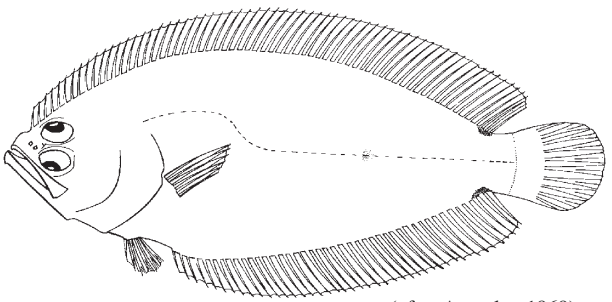
Distribution: From Maldive Islands, throughout eastern Indian Ocean and Indo-Australian Archipelago, to northern area of South China Sea.

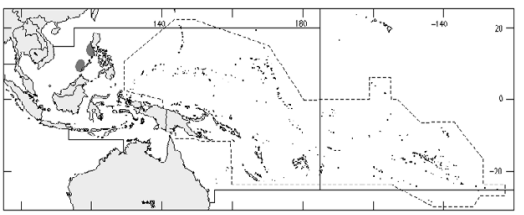


Citharoides macrolepidotus Hubbs, 1915

En - Branched ray flounder.

Maximum total length 29 cm. Known from depths of 121 to 240 m. Feeds on bottom-living animals. Apparently not marketed. Rare. Known from the Philippines, southern Japan, and the Korean Peninsula.



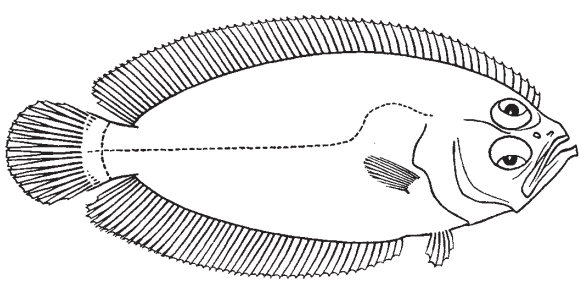


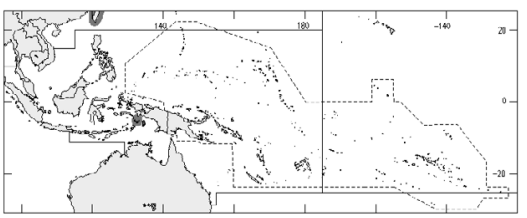
(after Amaoka, 1969)

Lepidoblepharon ophthalmolepis Weber, 1913

En - Scale-eyed flounder.

Maximum total length 36 cm. Known from depths of 310 to 435 m on mud bottoms. Feeds on bottom-living animals. Apparently not marketed. Rare. Known from the Arafura Sea near the Kei Islands, Taiwan Province of China, and the southeastern coast of Japan.





(from Norman, 1934)