

Order Heterosomata

Body asymmetrical, strongly compressed, precaudal region short. Cranium normal behind, with twisted vertex in front to permit 2 eyes on same side, or one vertical and other lateral. Mouth more or less protrac-tile, formed above on edges by premaxillaries only. Interorbital bar mainly formed by frontal of eyed side. Parietals separated by supraoccip-ital. Vertebral column of solid centra joined with arches. Pectoral arch joined to skull by forked post-temporal. Upper pharyngeals 4, third largest, much extended forward. Lower pharyngeals separate. Air bladder absent in adult. Dorsal and anal long. Caudal with 17 rays, 15 branched, or fewer. Ventrals with 6 rays or less, thoracic or jugular.

A large group of fishes, remarkable for the asymmetrical devel-opment of color on one side of the body. In the very young both sides of the body are alike, one eye is placed on each side, the cranium normal and the fish swims erect.



Analysis of Families

a! Dorsal not extending forward on head, front rays spinous; eyes on right or left side; each ventral with spine and 5 soft rays.

Psettodidae.

a<sup>2</sup> Dorsal extending forward on head at least until over eye, none of rays spinous; ventral without spine.

b! Preopercle edge free; lower jaw usually prominent.

c! Eyes on left side (except in reversed specimens). Bothidae.

c<sup>2</sup> Eyes on right side (except in reversed specimens). Pleuronectidae

b<sup>2</sup> Preopercle edge not free, hidden by skin and scales of head; lower jaw never prominent.

d! Eyes on right side. Soleidae.

d<sup>2</sup> Eyes on left side. Cynoglossidae.



Family Psettodidae

Elongately ovoid, strongly compressed. Head moderate. Upper eye little advanced, on upper profile of head. Maxillary with well developed supramaxillary. Mouth large, lower jaw prominent. Teeth strong, pointed, equally developed in both sides of jaws. Palatines with teeth. Nasal openings on blind side scarcely higher than those of other side. Olfactory laminae transverse to radiating from central rachis. Preopercle edge free. No gill rakers. Vertebrae 24, of which 14 caudal. Scales rather small. Dorsal not extended forward on head, front rays feeble though spinous. Ventrals nearly symmetrical, with feeble spine and 5 soft rays.



Genus Psettodes Bennett

Psettodes Bennett, Proc. Zool. Soc. London, vol. 1, p. 147, 1831. (Type

Pleuronectes belcheri Bennett, monotypic.)

Sphagomorus Cope, Trans. Amer. Philos. Soc., vol. 13, p. 407, 1866 (1869).

(Type Pleuronectes erumei Schneider, monotypic.)

Body ovoid. Caudal peduncle distinct. Mouth very wide. Maxillary more than 1/2 head, extends far back. Each jaw with 2 rows of long, slender, curved, distant teeth, front ones of inner lower row longest and received in groove before vomer. Gill membranes scarcely united at throat. No gill rakers or only as clusters of minute spines. Scales ciliated. Dorsal and anal scaleless, depressible in scaly basal sheaths. Caudal finely scaled. Dorsal begins at nape of neck, most rays like those of anal, branched.

Apparently two species. Psettodes belcheri Bennett from West Africa is said to represent a distinct species with smaller scales. These are the most generalized of the flat fishes, with certain percoid characters suggesting ancestry from the primitive percoid stock.



Psettodes erumei (Schneider)

Pleuronectes erumei Schneider, Syst. Ichth. Bloch, p. 150, 1801 (type locality : Tranquebar).

Hippoglossus erumei Rüppell, Atlas Reis, nördl. Afrika, Fische, p. 121, 1828 (Massaua). — Cuvier, Règne Animal, ed. 2, vol. 2, p. 569, 1829 ( ). — Rüppell, Neue Wirbelth., Fische, p. 84, 1835 (reference). — Cantor, Journ. Asiatic Soc. Bengal, vol. 18, pt. 1, pp. 1198, 1200, 1849 (1850) (Pinang Sea; Malay Peninsula).

Psettodes erumei Günther, Cat. Fishes Brit. Mus., vol. 4, p. 402, 1862 (Singapore, China, Pinang, Japan, India); Fishes of Zanzibar, p. 112, 1866 (Zanzibar). — Kner, Reise Novara, Fische, p. 282, 1865 (Java; Madras). — Bleeker, Atlas Ichth. Ind. Néerl., vol. 6, p. 4, pl. (1) 232, fig. 2, 1866-72 (Java, Madura, Sumatra, Pinang, Singapore, Bintang, Banka, Amboina). — Klunzinger, Verh. zool. bot. Gesell. Wien, vol. 21, p. 570, 1871 (Red Sea). — Day, Fishes of India, pt. 3, p. 422, pl. 91, fig. 4, 1877; Fauna British India, Fishes, vol. 2, p. 439, fig. 155, 1889. — Alcock, Journ. Asiatic Soc. Bengal, vol. 58, pt. 2, No. 3, p. 280, 1889 (Fake Point <sup>to</sup> ~~at~~ Ganjam, 10 to 23 fathoms). — Regan, Journ. Bombay Nat. Hist. Soc., vol. 16, p. 330, 1905 (Persian



- Gulf). — Jordan and Seale, Bull. Bur. Fisher., vol. 26, p. 45, 1906  
 (1907) (Cavite). — Evermann and Seale, Bull. Bur. Fisher., vol. 26,  
 p. 106, 1906 (1907) (San Fabian). — Jenkins, Mem. Indian Mus., vol.  
 3, p. 23, 1910 ( ). — Bean and Weed, Proc.  
 U. S. Nat. Mus., vol. 42, p. 610, 1912 (Batavia). — Barnard, Ann.  
 South African Mus., vol. 21, pt. 1, p. 383, pl. 17, fig. 1 (copied),  
 June 1925 (Delagoa Bay). — Norman, Biol. Res. Endeavour, vol. 5, p.  
 221, 1926  
 Rec. Indian Mus., vol. 29, pt. 1, p. 8, text fig. 1, April 1927 (Santa-  
 palii, Gopalpur, Madras, Orissa, Hughli River mouth, Akyab, Elephant  
 Point, Mergui, Andamans; Persian Gulf; Muscat; Gulf of Orman). —  
Weber and Beaufort, Fishes Indo Austral. Archip., vol. 5, p. 97, fig.  
 24, 1929 (Tuban and Besuki, Java; Java Sea; Madura; Makassar, Celebes;  
 Flores). — Fowler, Proc. Acad. Nat. Sci. Philadelphia, vol. 81, p. 615,  
 1929 (Hong Kong). — Tirant, Serv. Océan. Pech. Indo Chine, 6<sup>e</sup> Note,  
 p. 172, 1929 (Phu Yen).
- Pleuronectes nalaka Cuvier, Règne Animal, ed. 2, vol. 2, p. 340, 1829 (on  
Nooree nalaka Russell, Fishes of Coromandel, vol. 1, p. 60, pl. 77,  
 1803; type locality : Vizagapatam).



Hippoglossus dentex Richardson, Zool. Voy. Sulphur, Fishes, p. 102, pl. 47, 1843-45 (type locality : southern coast of China); Ichth. China Japan, p. 278, 1846 (China; Canton).

Hippoglossus orthorhynchus Richardson, Ichth. China Japan, p. 278, 1846 (type locality : coasts of China; Canton).

Hippoglossus goniographicus Richardson, Ichth. China Japan, p. 279, 1846 (type locality : coasts of China; Canton).

Psettodes goniographicus Bleeker, Nederl. Tijds. Dierk., vol. 4, p. 130, 1873 (1874) (reference). — Chu, Biol. Bull. St. John's Univ., Shanghai, No. 1, p. 89, Jan. 1931 (compiled).

Hippoglossus quadrifasciatus Van Hasselt, in Bleeker, Atlas Ichth. Ind. Néerl., vol. 6, p. 5, 1866-72. (type locality : Java; name in synonymy).

Depth  $2 \frac{1}{6}$  to  $2 \frac{1}{4}$ ; head  $3 \frac{1}{10}$  to  $3 \frac{1}{4}$ , width  $2 \frac{2}{3}$  to 3. Snout to lower eye  $3 \frac{2}{3}$  to  $3 \frac{4}{5}$  in head from snout tip; lower orbit  $6 \frac{1}{2}$  to 7,  $1 \frac{3}{4}$  to  $1 \frac{4}{5}$  in snout, exceeds entire interorbital width; eye small, about  $\frac{1}{3}$  to  $\frac{2}{5}$  of orbit; maxillary extends beyond eye greater than length of orbit, expansion 1 to  $1 \frac{1}{5}$  in orbit, length  $1 \frac{1}{3}$  to  $1 \frac{2}{5}$  in head from snout tip; bony interorbital less than pupil. Gill rakers 6 + 9 very low broad spinescent tubercles, barely  $\frac{1}{4}$  of gill filaments, which subequal with orbit.

Scales 58 to 60 in lateral line to caudal base and 5 to 7 more on latter; 22 to 24 above, 33 to 38 below. Maxillary of colored side



with 2 or 3 rows of small scales terminally, naked on blind side. Muzzle, snout and interorbital naked. Scales with 24 to 31 basal radiating striae; 14 to 20 radiating apical striae ending in as many weak points; circuli fine, <sup>s</sup>1st distinct or regular apically.

D. 50 to 53, fin height  $2 \frac{3}{5}$  to 3 in total head length; A. 37 to 43, fin height  $2 \frac{2}{5}$  to  $2 \frac{1}{2}$ ; caudal  $1 \frac{1}{8}$  to  $1 \frac{1}{4}$ , double convex or broadly cuneate behind; least depth of caudal peduncle  $2 \frac{1}{8}$  to  $2 \frac{1}{2}$ ; pectoral 2 to  $2 \frac{1}{3}$ ; left ventral  $2 \frac{1}{2}$  to  $2 \frac{2}{3}$ .

Colored side (right or left) uniform umber, uncolored side whitish. In young sometimes 3 paler or grayish transverse bands on body and another at caudal base, often pale basal caudal band persistent with age. Iris dark neutral gray. Dorsal and anal usually little darker than body color, or more dusky and narrowly edged paler. On blind side vertical fins all dusky terminally.

Arabia, Persian Gulf, Portuguese East Africa, Zanzibar, India, Malaya, East Indies, Philippines, Indo China, China.

4208, 2932. D. 5361. Corregidor Light, S.  $89^{\circ}W.$ , 7.2 miles (lat.  $14^{\circ}24'15''N.$ , long.  $120^{\circ}41'30''E.$ ), Manila Bay. In 12 fathoms. February 8, 1909. Length 153 to 263 mm. Smaller dextral, larger sinistral.

19408. Iloilo market. March 28, 1908. Length 128 mm. Dextral. Two examples. Manila market. December 12, 1907. Length 133 to 148 mm. Larger dextral, smaller sinistral.

8051 Manila market. March 18, 1908. Length 127 mm. Dextral.

20094. Manila market. July 11, 1908. Length 138 mm. Sinistral.



17605, 17606. Manila market. July 29, 1908. Length 200 to 215 mm. Larger sinistral, smaller dextral.

6730. Manila market. December 5, 1908. Length 272 mm. Sinistral.

8562 to 8568. D. 5442. San Fernando Point Light, N.39°E., 8.4 miles (lat. 16°30'36"N., long. 120°11'06"E.), west coast of Luzon. In 45 fathoms. May 10, 1909. Length 244 to 418 mm. Two dextral, others sinistral.

7856. D.5358. Sandakan Light, S.34°W., 19.7 miles (lat. 6°6'40"N., long. 118°18'15"E.), Jolo Sea. In 39 fathoms. January 7, 1908. Length 265 mm. Dextral.



Family Bothidae

Body sinistral. Eyes moderate. Maxillary usually over  $1/3$  of head. Mouth symmetrical, large, usually terminal and lower jaw prominent. No supplemental maxillary. Dentition nearly equally developed in both sides of jaws. No palatine teeth. Nostril of blind side near edge of head. Preopercle edge free. Nerve of right side always dorsal. Olfactory laminae arranged transversely to, or radiating from a central rachis. Lower pharyngeals narrow, each with one or more rows or a narrow band of small sharp teeth. Vertebrae 31 to 45, of which 24 to 33 caudal; parapophyses united or separated below. No accessory lateral line. Dorsal fin begins on head, at least above eye. All fin rays articulated. Anal spine usually weak or obsolete, sometimes pelvic spine developed. Caudal rounded or subtruncate. Paired fins usually well developed. Ventrals unlike in form and position, left or colored fin extended on ridge of abdomen with wide set rays.

Tropical or subtropical species.



Analysis of Genera

- a! Paralichthinae. Ventral fins alike; eye separated by ridge; mouth moderate or large; teeth uniserial.
- b! Maxillary moderate or large, more than 1/3 of head; lateral line on both sides. Pseudorhombus.
- b<sup>2</sup>! Maxillary small, less than 1/3 of head; lateral line absent from blind side. Taeniopsetta.
- a<sup>2</sup>! Bothinae. Left ventral fin median, base much longer than right one.
- c! Dentition more or less developed on both sides of jaws.
- d! Mouth moderate or small; maxillary 1/2 or less of head; lower jaw prominent.
- e! Eyes separated by bony ridge or concave space of moderate width; interorbital alike in both sexes; gill opening extends upwards to or nearly to beginning of lateral line; usually no rostral spines, when developed present in both sexes.
- f! No rostral spines; front dorsal rays sometimes moderately extended in males.
- g! Scales of eye side rather weakly ctenoid or ciliated. Arnoglossus.
- g<sup>2</sup>! Scales of colored side strongly ciliated. Crossolepis.
- f<sup>2</sup>! Rostral spines present; front dorsal rays prolonged in both sexes, filamentous in males. Lophonectes
- e<sup>2</sup>! Interorbital concave, usually very wide in males; gill opening ends short space above pectoral fin, membrane connects opercle with shoulder, scaleless; rostral and ocular spines developed only in males; scales small.
- h! Scales small, 75 to 80 or more.
- i! Scales slightly or moderately ctenoid on eyed side. Bothus.
- i<sup>2</sup>! Scales strongly ciliated, denticles long and slender on eyed side Crossobothus.



- h<sup>2</sup> Scales large, 38 to 60, strongly ciliated in eyed side. Crossorhombus.
- d<sup>2</sup> Mouth very large; maxillary more than 1/2 of head; body elongate; lower jaw prominent. Chascanopsetta.
- c<sup>2</sup> Dentition more entirely on blind side; mouth small; maxillary nearly 4 to 5 in head. Laeops.



Genus Pseudorhombus Bleeker

Pseudorhombus Bleeker, Versl. Med. Kon. Akad. Wet. Amsterdam, vol. 13,  
p. 426, 1862. (Type Rhombus polyspilos Bleeker, monotypic.)

Tetratorhombus Macleay, Proc. Linn. Soc. New South Wales, vol. 6, p. 126,  
1881. (Type Tetratorhombus excisiceps Macleay, monotypic.)

Rhombiscus Jordan and Snyder, Proc. U. S. Nat. Mus., vol. 23, p. 379,  
1900. (Type Rhombus cinnamomeus Schlegel, orthotypic.)



Eyes normally on left side, close together, separated by bony ridge. Mouth moderate or large, extends below eye. Teeth in jaws rather strong, sometimes canine like, uniserial. No teeth on palate. Gill membranes united, free from isthmus. Gill rakers slender or very short dentated knobs. Scales moderate or small, ctenoid or partly cycloid on left side, usually cycloid on right side. Fins scaly. Lateral line present on both sides, with strong arch anteriorly and accessory branch running to dorsal base. Dorsal begins on snout, none of rays enlarged. Ventral bases short, fins symmetrical.

Indo-Pacific.



Pseudorhombus annamensis Chabanaud

Pseudorhombus annamensis Chabanaud,

—Chevey, Inst. Océan. Indo Chine, 19<sup>e</sup> Note, p. 27, Aug. 25, 1932

(Annam).



Pseudorhombus annulatus Norman

Pseudorhombus annulatus Norman, Rec. Indian Mus., vol. 29, pt. 1, p. 12,

pl. 2, April 1927 (type locality : Muscat, Gulf of Oman).

Rhomboidichthys pantherinus (not Rüppell) Regan, Journ. Bombay Nat.

Hist. Soc., vol. 16, p. 332, 1905 (Muscat).



Pseudorhombus anomalus Ogilby

Pseudorhombus anomalus Ogilby, Mem. Queensland Mus., vol. 1, p. 48,

Nov. 27, 1912 (type locality : Moreton Bay). McCulloch, Austral.

Mus. Mem., No. 5, pt. 2, p. 279, Sept. 10, 1929 (reference).



Pseudorhombus argus Weber

Pseudorhombus argus Weber, Siboga Exped., vol. 57, p. 425, pl. 11, fig.

6, May 1913 (type locality : J eden Island, east Aru Islands). —

Weber and Beaufort, Fishes Indo Austral. Archip., vol. 5, p. 113,

fig. 27, 1929 (type). — McCulloch, Austral. Mus. Mem., No. 5, pt. 2,

p. 278, Sep. 10, 1929 (reference).

Depth  $2 \frac{1}{8}$ ; head  $3 \frac{1}{4}$ , width 4. Snout to lower orbit  $4 \frac{4}{5}$  in head from snout tip; lower orbit  $3 \frac{3}{5}$ , greater than snout, opposite upper orbit; maxillary reaches  $\frac{2}{3}$  in lower orbit, expansion 2, length  $2 \frac{1}{5}$  in head from snout tip; interorbital narrow, trenchant keel. Gill rakers 2 + 10, low tubercles,  $\frac{2}{5}$  of gill filaments, which  $2 \frac{1}{2}$  in lower orbit.

Scales 74 in lateral line to caudal base and 4 more on latter; 29 above, 31 below. Vertical fins all with fine scales, as single row along each dorsal and anal rays. Snout and front of mandible naked. Maxillary largely scaly terminally. Scales with 7 to 11 basal radiating striae; 9 or 10 divergent, rather irregular, strong apical denticles; circuli fine, continuous. Lateral line on both sides of body, arch  $2 \frac{3}{4}$  in straight section to caudal base. Right scales cycloid.

D. 72, fin height 2 in total head length; A. 55, fin height  $2 \frac{2}{5}$ , preceded by small concealed spine; caudal  $1 \frac{1}{4}$ , obtusely angular behind; least depth of caudal peduncle  $3 \frac{1}{4}$ ; pectoral  $1 \frac{2}{3}$ ; ventral  $2 \frac{2}{5}$ .

Left side fawn color generally, four large prominent dark brown to neutral black rounded blotches, each with pair of linked whitish rings



made up of small white spots or dots, also few other white dots scattered around within radius of dark blotch. Left side otherwise with many dark rounded blotches, larger ones scattered among smaller ones and each of former with more or less paler triangular blotch. Of larger of these blotches 2 on lateral line, well separated and posterior have few small white dots in addition. On head all spots smaller than on body. In all intermediate-areas of head and body many very small scattered dark dots or specks, some formed as minute or small arcs, curves, etc. Orits dark gray. Vertical fins with row of dark brown subbasal circles on dorsal and anal, caudal with smaller circles and terminally all fins with scattered small dark brown specks or dots. Pectoral pale, with obscure dull brown dots on rays. Ventral like anal. Right side whitish, also its paired fins, vertical fins with brownish rings and dots more or less obscured.

Heretofore known only from the Aru Islands I have to add a second specimen from Buton Strait. A beautiful species, easily known by its ornamental color pattern, the large dark blotches of the colored side each with bead like dots forming 2 linked circles.

D. 5641. Kalono Point (W.), N. 61°W., 3.4 miles (lat. 4°29'24" S., long. 122°52'30"E.), Buton Strait. In 39 fathoms. December 14, 1909. Length 90 mm.



Pseudorhombus arsius (Buchanan-Hamilton)

Pleuronectes arsius Buchanan-Hamilton, Fishes of Ganges, pp. 128, 373,

1822 (type locality : estuary below Calcutta). —Hora, Mem. Indian

Mus., vol. 9, No. 4, pl. 17, figs. 1-2, 1929.

Rhombus arsius Bleeker, Verhand. Batavia. Genoot. (Bengal Hind.), vol.

25, p. 76, 1853 (reference).

Pseudorhombus arsius Günther, Cat. Fishes Brit. Mus., vol. 4, p. 426,

1862 (colored drawing). —Day, Fishes of India, pt. 3, p. 423, pl.

91, fig. 5, 1877. —Jordan and Seale, Proc. U. S. Nat. Mus., vol.

29, p. 529, 1905 (Hong Kong); Bull. Bur. Fisher., vol. 26, p. 45,

1906 (1907) Cavite). —Jenkins, Mem. Indian Mus., vol. 3, p. 24, 1910

(  
     . —Snyder, Proc. U. S. Nat. Mus., vol. 42, p. 439,

1912 (Shimizu; Kagoshima). —Jordan, Tanska, Snyder, Journ. College

Sci., vol. 33, p. 315, 1913 (reference). —Hora, Mem. Indian Mus.,

vol. 5, pt. 5, p. 758, 1923 (Chilka Lake); Mem. Asiatic Soc. Bengal,

vol. 6, pt. 9, p. 476, 1924 (Talé Sap. Peninsula Siam). —Norman,

Biol. Res. Endeavour, vol. 5, p. 231, 1926 (



Rec. Indian Mus., vol. 29, pt. 1, p. 13, April 1927 (Karachi, South Canara, Madras, Emmer, Puri, Balasore Bay, Orissa, Chilka Lake, Calcutta, Akyab, Andamans, Morrison Bay; Muscat; Gulf of Oman; Bengal; South Canara). —Reeves, Journ. Pan Pac. Res. Inst., vol. 2, No. 3, p. 14, July-Sep. 1927 (Swatow). —Weber and Beaufort, Fishes Indo Austral. Archip., vol. 5, p. 105, 1929 (Sumatra, Java, Borneo, Ambon, Aru, New Guinea). —McCulloch, Austral. Mus. Mem., vol. 5, pt. 2, p. 279, Sep. 10, 1929 (compiled). —Chu, Biol. Bull. St. John's Univ. Shanghai, No. 1, p. 91, Jan. 1931 (reference). —Chevey, Inst. Océan. Indo Chine, 19<sup>e</sup> Note, p. 27, Aug. 25, 1932 (Annam).

?Pleuronectes nauphala Buchanan-Hamilton, Fishes of Ganges, pp. 126,

1822 (type locality : Gangetic estuaries).

Pseudorhombus maculosus Bleeker, Nederl. Tijdschr. Dierk., vol. 4, p. 130,

1873 (1874) name). —Chu, Bull. St. John's Univ. Shanghai, No. 1, p.

90, Jan. 1931 (reference).

Platessa russellii Gray, Illustrat. Ind. Zool. Hardwicke, vol. 2, pl. 94,

fig. 2, 1830-35 (1834) (type locality : India).



Pseudorhombus russellii Günther, Cat. Fishes Brit. Mus., vol. 4, p. 424,

1862 (Natal, China, Borneo, Ceram, Bengal, East Indies, Pinang, Port

Essington). — Klunzinger, Sitzs. Ber. Akad. Wiss. Wien, Math.-nat. Kl.,

vol. 80, pt. 1, p. 406, 1879 (1880) (Endeavour River, Queensland). —

Macleay, Proc. Linn. Soc. New South Wales, vol. 6, p. 124, 1881 (Port

Jackson; Port Essington). — Alcock, Journ. Asiatic Soc. Bengal, vol.

58, pt. 2, p. 282, 1889 (Bengal Bay). — Jenkins, Mem. Indian Mus.,

vol. 3, p. 25, 1910 ( ). — Ogilby,

Mem. Queensland Mus., vol. 1, p. 43, 1912 (reference). — Seale,

Philippine Journ. Sci., vol. 9, p. 78, 1914 (Hong Kong). — Fowler,

Proc. Acad. Nat. Sci. Philadelphia, vol. 75, p. 204, 1925 (Delagoa Bay).

Pseudorhombus russellii Sauvage, Hist. Nat. Madagascar, Poiss., p. 473,

1891 (Zanzibar; Madagascar). — Meyer, Anal. Soc. Esp. Hist. Nat. Madrid,

vol. 14, 1885, p. 40 (Manila Bay).

Pseudorhombus russellii Bleeker, Atlas Ichth. Ind. Néerl., vol. 6, p. 6,

pl. (2) 233, fig. 2, 1866 (Java, Sumatra, Pinang, Singapore, Bintang,

Banka, Borneo, Celebes, Amboina, Ceram, New Guinea). — Günther, Rep.

Voy. Challenger, vol. 1, pt. 6, p. 46, 1880 (Arafura Sea, 35 to 49 fath-

oms), p. 53, (Philippines). — Regan, Ann. Durban Mus., vol. 2, pt. 5,



p. 208, fig. 1, 1920 (Natal). — Barnard, Ann. South African Mus.,  
 vol. 21, pt. 1, p. 388, pl. 27, fig. 2, June 1925 (East London;  
 Delagoa Bay; 20 to 60 fathoms). — Reeves, Journ. Pan. Pac. Res.  
 Inst., vol. 2, No. 3, p. 14, July-Sep. 1927 (Chefoo). — Sowerby,  
 Naturalist Manchur., vol. 4, p. 180, 1930 (Pei tai Ho).

Platophrys russellii Evermann and Seale, Bull. Bur. Fisher., vol. 26,  
 p. 105, 1906 (1907) (Bulan).

Rhombus lentiginosus Richardson, Ann. Mag. Nat. Hist., vol. 11, suppl.,  
 p. 495, July 1843 (type locality : Port Essington).

Platessa balteata Richardson, Ichth. China Jap., p. 278, 1846, (type  
 locality : Canton).

Platessa chrysoptera Richardson, Ichth. China Jap., p. 278, 1846 (type  
 locality : Chinese coasts; Canton).

Rhombus polyspilos Bleeker, Naturk. Tijds. Nederl. Indië, vol. 4, p.  
 503, 1853 (type locality : Batavia, Java; Telok betong, south Sumatra).



Pseudorhombus polyspilus Bleeker, Atlas Ichth., Ind. Néerl., vol. 6, p. 7, pl. (6) 237, fig. 3, 1866-72 (Java, Sumatra, Singapore, Celebes, Batjan, Ceram); Verh. Kon. Akad. Wet. Amsterdam (Chine), vol. 18, p. 3, 1879 (China). — Klunzinger, Sitzs. Ber. Akad. Wiss. Wien, Math.-nat. Kl., vol. 80, pt. 1, p. 406, 1879 (1880) (King George Sound, Queensland). — Jordan and Seale, Bull. Bur. Fisher., vol. 26, p. 45, 1906 (1907) (Cavite). — Jordan and Richardson, Bull. Bur. Fisher., vol. 37, p. 281, 1907 (Manila). — Ogilby, Mem. Queensland Mus., vol. 1, p. 43, 1912 (name). — Weber, Siboga Exped., vol. 57, p. 424, 1913 (Macassar; Saleyer). — Reeves, Journ. Pan Pac. Res. Inst., vol. 2, No. 3, p. 14, July Sep. 1927 (Chefoo). — McCulloch, Austral. Mus. Mem., vol. 5, pt. 2, p. 280, Sep. 10, 1929 (reference). — Weber and Beaufort, Fishes Indo Austral. Archip., vol. 5, p. 106, fig. 26, 1929 (Simalur; Sumatra; Madura; Celebes; Saleyer; Buton; Ambon; Aru). — Schmidt, Trans. Pac. Comm. Acad. Sci. U. S. S. R., vol. 1, p. 112, 1930 (Kominoto, Riu Kiu). — Chu, Biol. Bull. St. John's Univ. Shanghai, No. 1, p. 90, Jan. 1931 (Chefoo).



Paralichthys polypilus Fowler, Journ. Acad. Nat. Sci. Philadelphia,  
ser. 2, vol. 12, p. 555, 1904 (Padang).

Rhombus subocellatus (Van Hasselt) Bleeker, Atlas Ichth. Ind. Néerl.,  
vol. 6, p. 6, 1866-72 (name in synonymy).

Tetrarhombus excisiceps Macleay, Proc. Linn. Soc. New South Wales, vol.  
6, pt. 1, p. 126, pl. 2, July 1881 (type locality : Port Jackson,  
Australia [malformation]).

Pleuronectes mortoniensis De Vis, Proc. Linn. Soc. New South Wales, vol.  
7, pt. 3, p. 370, Oct. 28, 1882 (type locality : Moreton Bay,  
Queensland).

Pseudorhombus multimaculatus (not Günther) Meyer, Anal. Soc. Espan. Hist.  
Nat. Madrid, vol. 14, p. 40, 1885 (north Celebes).

Neorhombus ocellatus De Vis, Ann. Rep. Queensland Mus., vol. -, p. -,  
1886 (type locality : Caloundra, Queensland; name only).

Pseudorhombus andersoni Gilchrist, Mar. Investig. South Africa, vol. 3,  
p. 9, pl. 26, 1904 (type locality : South Africa).



Depth 2 to  $2 \frac{1}{5}$ ; head  $2 \frac{4}{5}$  to  $3 \frac{2}{3}$ , width 4 to 5. Snout to lower orbit  $4 \frac{1}{8}$  to  $4 \frac{7}{8}$  in head from snout tip; lower orbit 4 to  $4 \frac{7}{8}$ , subequal to little greater than snout, advanced slightly, opposite or slightly posterior; maxillary reaches  $\frac{1}{2}$  to  $\frac{2}{3}$  in lower orbit, expansion  $1 \frac{1}{2}$  to 2 in lower orbit, length  $2 \frac{1}{4}$  to  $2 \frac{2}{5}$  in head from snout tip; teeth anteriorly above long slender canines, smaller posteriorly and smaller anteriorly below; bony interorbital narrow trenchant ridge. Gill rakers 3 to 6 + 11, lanceolate,  $\frac{1}{2}$  gill filaments, which  $\frac{1}{2}$  in lower orbit.

Scales 71 to 73 in lateral line to caudal base and 6 or 7 more on latter; 22 to 24 above, 30 to 32 below. Row of fine small scales along each dorsal and anal median membranes and fin bases scaly over larger median area. Left scales with 16 to 20 basal striae; apical denticles 34 to 38. Right scales cycloid, with 18 to 23 basal striae.

D. 73 to 80, fin height  $2 \frac{1}{8}$  to  $2 \frac{3}{4}$  in total head length; A. 56 to 60, fin height  $2 \frac{1}{4}$  to  $2 \frac{1}{3}$ ; caudal  $1 \frac{1}{8}$  to  $1 \frac{1}{5}$ , rounded behind; least depth of caudal peduncle  $2 \frac{1}{8}$  to 3; left pectoral  $1 \frac{2}{5}$  to  $2 \frac{1}{4}$ ; ventral  $2 \frac{2}{4}$  to  $2 \frac{1}{2}$ .

Left side umber, scarcely clouded, to variably clouded with blackish. Large dusky blotch at beginning of straight section of lateral line and another smaller midway in latter. Often left side, inclusive of vertical fins with numerous fine close-set dusky to blackish dots scattered all about. Often many numerous fairly close-set dark rings, variable, frequently incomplete to obscure. Rings also extend over vertical fins. Fins with very pale brown ground color, all on left side with dark specks. Right side whitish, with dark dots showing faintly through fins.

Arabia, Natal, India, Andamans, Siam, Annam, East Indies, Philippines, China, Riu Kiu, Japan, North Australia, Queensland, New South Wales.



21077. Abuyog, Leyte. July 26, 1909. Length 130 mm.

20461, 20462, 20464. Catbalogan, Samar. April 15, 1908.  
Length 90 to 174 mm.

5999, 6713, 12073. Cavite market, Luzon. December 1,  
1908. Length 133 to 250 mm.

12813. Cavite and San Roque markets. June 27, 1908.  
Length 193 mm.

5840. Davao, Mindanao. May 16, 1908. Length 238 mm.

1762. D.5342. Endeavour Point, (S.), S.58°E., 0.5 miles  
(lat. 10°56'55"N., long. 119°17'24"E.), Malampaya Sound, Palawan  
Island. December 23, 1908. Length 131 mm.

4935 to 4937. Iloilo market, Iloilo, Panay. March 29,  
1908. Length 88 to 141 mm.

14146. Iloilo market. June 1, 1908. Length 151 mm.

6635. Iloilo market. March 28, 1908. Length 219 mm.

5865. Malabang, Mindanao. May 21, 1908. Length 248 mm.

7632, 11643. Malampaya Island. December 26, 1908. Length  
195 to 245 mm.



3 examples. Manila Bay outside harbor wall. December 12,  
1907. Length 40 to 70 mm.

1 example. Manila market. December 12, 1907. Length 94 mm.

6772. Manila market. April 29, 1909. Length 264 mm.

17604. Manila market. July 29, 1908. Length 213 mm.

8490. Mantaquin Bay, Palawan. April 2, 1909. Length 260 mm.

1955. D. 5518. Point Tagolo Light, S.64°W., 8.7 miles (lat.  
8°48'N., long. 123°31'E.), northern Mindanao. August 9, 1909. Length  
121 mm.

19467, 19504. Ragay River. Ragay Gulf, Luzon. March 10, 1909.  
Length 133 to 212 mm.

A 1019. Buka Buke Island, Gulf of Tomini, Celebes. November  
20, 1909. Length 173 mm.

5012. Sandakan Bay, Borneo. March 2, 1908. Length 210 mm.

[624]. Data not given. Length 149 mm.



Pseudorhombus cinnamomeus (Schlegel)

Rhombus cinnamomeus Schlegel, Fauna Japonica, Poiss., pts. 10-14, p. 180,

pl. 93, 1846 (type locality : bays of Japan). —Bleeker, Act. Soc.

Sci. Ind. Néerl., (Jap.), vol. 3, p. 25, 1858 (reference).

Pseudorhombus cinnamomeus Günther, Cat. Fishes Brit. Mus., vol. 4, p.

427, 1862 (compiled). —Namiye, Class. Cat., p. 110, 1881 (Tokyo).

—Otaki, Journ. Imp. Bur. Fisher. Tokyo, p. 6, pl. 3, fig. 2, 1897

(south east Japan). —Ishikawa and Matsuura, Prelim. Cat. Fishes

Mus. Tokyo, p. 25, 1897 (reference). —Jordan and Starks, Proc. U. S.

Nat. Mus., vol. 31, p. 174, 1906 (Tokyo, Tsuruga, Wakanoura, Kobe,

Oonomichi, Nagasaki, Takata, Kawatana). —Snyder, Proc. U. S. Nat.

Mus., vol. 42, p. 438, 1912 (Nusaki; Shimizu). —Jordan, Tanaka,

Snyder, Journ. College Sci. Tokyo, vol. 33, p. 315, 1913 (compiled).

—Tanaka, Fig. Deser. Fishes Japan, vol. 14, p. 231, pl. 65, fig. 238,

1913 (Japan). —Izuka and Matsuura, Cat. Zool. Spec. Mus.

Tokyo, Vertebr., p. 116, 1920 (Kii). —Jordan and Hubbs, Mem. Carnegie

Mus., vol 10, No. 2, p. 296, 1925 (Tokyo; Chosi).



—Reeves, Journ. Pan Pac. Res. Inst., vol. 2, No. 3, p. 14, July-Sep.  
 1927 (Hong Kong and north). —Tanaka, Journ. Fac. Sci. Univ. Tokyo,  
 sect. 4, Zool. vol. 3, pt. 1, p. 38, Nov. 4, 1931 (reference). —  
Chu, Biol. Bull. St. John's Univ. Shanghai, No. 1, p. 90, Jan. 1931  
 (reference). —Schmidt, Trans. Pac. Comm. Acad. Sci. U. S. S. R.,  
 vol. 2, p. 124, 1931 (Nagasaki); Comptes Rend. Acad. Sci. U. S. S. R.,  
 p. 315, 1931 (Fusan, Korea).

Rhombiscus cinnamoneus Jordan and Snyder, Proc. U. S. Nat. Mus., vol.  
 , p. 379, 1900 (Tokyo); Annot. Zool. Japon. Tokyo, vol. 3, p. 121,  
 1901 (Yokohama, Nagasaki, Hakodate). —Jordan and Seale, Proc. Daven-  
 port Acad. Sci., vol. 10, p. 16, 1905 (Hong Kong).

Rhombus oligodon Bleeker, Naturk. Tijds. Nederl. Indië, vol. 6, p. 419,  
 1854 (type locality : Nagasaki); Verh. Batavia. Genoot. (Jap.), vol.  
 26, p. 121, 1857 ( ); Act. Soc. Sci. Ind. Néerl., vol.  
 5, p. , pl. 3, fig. 2, 1858-59.

Paralichthys oligodon Jordan and Snyder, Annot. Zool. Jap., vol. 3, p.  
 121, 1901 (reference).



Pseudorhombus oligodon Jordan and Evermann, Proc. U. S. Nat. Mus., vol. 25, p. 365, 1902 (Formosa). — Jordan and Starks, Proc. U. S. Nat. Mus., vol. 31, p. 177, 1906 (Formosa). — Snyder, Proc. U. S. Nat. Mus., vol. 42, p. 438, 1912 (Shimizu, Tsuruga, Formosa). — Jordan, Tanaka, Snyder, Journ. College Sci., Tokyo, vol. 33, p. 315, 1913 (reference). — Izuka and Matsuura, Cat. Zool., Spec. Mus. Tokyo, p. 116, 1920 (Boshiu). — Reeves, Journ. Pan Pac. Res. Inst., vol. 2, No. 3, p. 14, July-Sep. 1927 (North China; Amoy). — Weber and Beaufort, Fishes Indo Austral. Archip., vol. 5, p. 101, 1929 (Banka Straits; South China Sea, Java Sea, Java, Madura Strait, Madura, Macassar Strait, Saleyer). — Schmidt and Lindberg, Bull. Acad. Sci. U. S. S. R., p. 1147, 1930 (Tsuruga?). — Chu, Biol. Bull. St. John's Univ. Shanghai, No. 1, p. 90, Jan. 1931 (reference). — Chevey, Inst. Océan. Indo Chine, 19<sup>e</sup> Note, p. 27, Aug. 25, 1932 (Cochin China; Annam).

Pseudorhombus misakius Jordan and Starks, Proc. U. S. Nat. Mus., vol. 31, p. 175, figs. 4-5, 1906 (type locality : Kobe; Misaki; Tsuruga; Wakanoura). — Jordan, Tanaka, Snyder, Journ. College Sci. Tokyo, vol. 33, p. 316, 1913 (reference). — Seale, Philippine Journ. Sci., vol. 9, p. 78, 1914 (Hong Kong). — Izuka and Matsuura, Cat. Zool. Spec. Mus. Tokyo, Vertebr., p. 116, 1920 (Tokyo). — Schmidt and Lindberg, Bull.



Acad. Sci. U. R. S. S., p. 1147, 1930 (Tsuruga). Chu, Biol. Bull.

St. John's Univ., Shanghai, No. 1, p. 90, Jan. 1931 (reference).

Pseudorhombus arsius (not Buchanan-Hamilton) Jenkins, Mem. Indian Mus.,

vol. 3, p. 24, 1910 (part).

Depth  $1 \frac{9}{10}$  to  $2 \frac{1}{6}$ ; head  $3 \frac{3}{5}$  to  $3 \frac{3}{4}$ , width  $4 \frac{1}{2}$ . Snout to lower orbit  $4 \frac{3}{5}$  in head from snout tip; lower orbit  $4 \frac{3}{5}$  to  $5 \frac{3}{4}$ , subequal with snout, opposite; maxillary reaches opposite hind edge of lower eye or  $\frac{3}{4}$  in lower orbit, expansion  $1 \frac{3}{4}$  in lower orbit; length  $2 \frac{1}{10}$  to  $2 \frac{1}{3}$  in head from snout tip; teeth pointed, rather irregular; bony interorbital rather high, trenchant keel, width  $\frac{1}{2}$  of pupil. Gill rakers  $2 + 8$  to 10, lanceolate,  $\frac{3}{4}$  gill filaments, which  $1 \frac{2}{3}$  in lower orbit.

Scales 77 in lateral line to caudal base and 6 more on latter; 31 above, 33 below. Vertical fin rays finely scaled. Muzzle and maxillary largely naked. Scales all ctenoid. Scales with 10 or 11 basal radiating striae; 17 to 19 slender apical denticles; circuli very fine, less distinct apically. Arch of lateral line  $2 \frac{3}{4}$  in straight section to caudal base.

D. 78 or 79, fin height  $2 \frac{1}{4}$  in total head length; A. 61 to 63, fin height  $2 \frac{2}{5}$ ; caudal  $1 \frac{1}{5}$  to  $1 \frac{2}{5}$ , broadly cuneate behind; least depth of caudal peduncle  $2 \frac{2}{3}$ ; left pectoral  $1 \frac{1}{3}$  to  $1 \frac{3}{5}$  in head; right pectoral  $2 \frac{1}{4}$ ; ventral 3 to 4.

Brown on left side. Obsolete large blackish spot at angle of lateral line. Eyes neutral gray. Fins pale brown, with slightly darker specks, most distinct terminally. Obscure dark cross streaks on ventral, none on uniform rather pale pectoral.



East Indies, Cochin China, China, Formosa, Korea, Japan.

9748. Kowloon, China. Oct. 5, 1908. Length 168 mm.



Pseudorhombus condorensis Chabanaud

—Chevey, Inst. Océan. Indo Chine, 19<sup>e</sup> Note, p. 27, Aug. 25, 1929  
(Puolo Condore).



Pseudorhombus diplospilus Norman

Pseudorhombus diplospilus Norman, Biol. Res. Endeavour, vol. 5, pt. 5,

p. 226, fig. 1, June 15, 1926 (type locality : Hervey Bay, Queensland).

McCulloch, Austral. Mus. Mem., No. 5, pt. 2, p. 280, Sep. 10, 1929

(reference).



Pseudorhombus dupliciocellatus Regan

Pseudorhombus dupliciocellatus Regan, Ann. Mag. Nat. Hist., ser. 7,

vol. 15, p. 25, 1905 (type locality : Inland Sea of Japan). —

Jordan and Starks, Proc. U. S. Nat. Mus., vol. 31, p. 177, 1906

(compiled). — Ogilby, Mem. Queensland Mus., vol. 1, p. 44, 1912

(off Pine Peak and Cape Gloucester, 25 to 36 fathoms). — Jordan,

Tanaka, Snyder, Journ. College Sci. Tokyo, vol. 33, p. 316, 1913

(copied). — Norman, Biol. Res. Endeavour, No. 5, p. 228, fig. 2,

1926.

Rec. Indian Mus., vol. 29, pt. 1, p. 10, April 1927 (Nicobars). —

Weber and Beaufort, Fishes Indo Austral. Archip., vol. 5, p. 102,

1929 (Java Sea, 100 meters). — McCulloch, Austral. Mus. Mem., No.

5, pt. 2, p. 278, Sep. 10, 1929 (compiled).

Pseudorhombus dupliocellatus Schmidt, Trans. Pac. Comm. Acad. Sci. U.

S. S. R., vol. 2, p. 124, 1931 (Misaki).

Pseudorhombus palad Evermann and Seale, Bull. Bur. Fisher., vol. 26,

p. 105, fig. 21, 1906 (1907) (type locality : Bulan, Philippines).

Pseudorhombus cartwrighti Ogilby, Mem. Queensland Mus., vol. 1, p. 47,

Nov. 27, 1912 (type locality : Moreton Bay [Brisbane market]).



Pseudorhombus elevatus Ogilby

Pseudorhombus elevatus Ogilby, Mem. Queensland Mus., vol. 1, p. 45, 1912

(type locality : Bulwer, Moreton Bay). —Norman, Biol. Res. Endeavour,

No. 5, p. 234, fig. 3, 1926

Rec. Indian Mus., vol. 29, pt. 1, p. 15, April 1927 (Persian Gulf,

Travancore, Madras, Ganjam, Orissa, Puri, Sandheads, Elephant Point).

—McCulloch, Austral. Mus. Mem., No. 5, pt. 2, p. 279, Sep. 10, 1929

(reference). —Chevey, Inst. Océan. Indo Chine, 19<sup>o</sup> Note, p. 27,

Aug. 25, 1932 (Annam).

Pseudorhombus javanicus (not Bleeker) Day, Fishes of India, pt. 3, p.

424, pl. 92, fig. 2, 1877 (part). —Jenkins, Mem. Indian Mus., vol.

3, p. 24, 1910 (part).

Pseudorhombus affinis Weber, Siboga Exped., vol. 57, p. 426, pl. 11,

fig. 1, 1913 (type locality : Saleyer, 18 to 46 meters). —Weber

and Beaufort, Fishes Indo Austral. Archip., vol. 5, p. 110, fig. 25,

(copied) (type; Flores; Malacca Strait).



Pseudorhombus guttulatus Macleay

Pseudorhombus guttulatus Macleay, Proc. Linn. Soc. New South Wales, vol.

8, p. 276, 1883 (type locality : Hood Bay, New Guinea). — Jordan and

Seale, Bull. Bur. Fisher., vol. 25, p. 412, 1905 (1906) (name). —

Fowler, Mem. Bishop Mus., vol. 10, p. 93, 1928 (compiled). — Weber

and Beaufort, Fishes Indo Austral. Archip., vol. 5, p. 115, 1929

(copied).



Pseudorhombus javanicus (Bleeker)

Rhombus javanicus Bleeker, Naturk. Tijds. Nederl. Indië, vol. 4, p. 502,  
1853 (type locality : Batavia, Java).

Pseudorhombus javanicus Günther, Cat. Fishes Brit. Mus., vol. 4, p. 427,  
1862 (no locality). — Bleeker, Atlas Ichth. Ind. Néerl., vol 6, p. 8,  
pl. (1) 222, fig. 3, 1866-72 (Java). — Day, Fishes of India, pt. 3, p.  
424, pl. 92, fig. 2, 1877 (Madras). — Alcock, Journ. Asiatic Soc.  
Bengal, vol. 58, pt. 2, No. 3, p. 282, 1889 (Bengal Bay). — Jenkins,  
Mem. Indian Mus., vol. 3, No. 1, p. 24, 1910  
— Seale, Philippine Journ. Sci., vol. , p. 287, 1910 (Sandakan Bay,  
Borneo). — Weber, Siboga Exped., vol. 57, p. 424, 1913 (Macassar).  
— Weber and Beaufort, Fishes Indo Austral. Archip., vol. 5, p. 109,  
1929 (Java, Java Sea, Celebes, Malacca Strait). — Chevey, Inst. Océan.  
Indo Chine, 19<sup>e</sup> Note, p. 27, Aug. 25, 1932 (Cochin China, Poulo-Condore,  
Annam).



Depth 2; head  $2 \frac{4}{5}$  to  $3 \frac{1}{5}$ , width  $3 \frac{1}{5}$  to 4. Snout to lower orbit 4 to  $4 \frac{4}{5}$  in head from snout tip; lower orbit  $4 \frac{1}{4}$  to  $5 \frac{1}{5}$ , 1 to  $1 \frac{1}{8}$  in snout; eyes nearly or quite opposite, or upper or lower very slightly in advance; maxillary reaches  $\frac{2}{5}$  to  $\frac{3}{5}$  in lower orbit, expansion  $1 \frac{1}{2}$  to 2 in lower orbit, length  $2 \frac{1}{4}$  to  $2 \frac{2}{5}$  in head from snout tip; interorbital narrow bony ridge, with very slight groove. Gill rakers 5 + 9, lanceolate, compressed,  $\frac{1}{2}$  gill filaments, which  $1 \frac{2}{5}$  in lower orbit.

Scales 70 or 71 in lateral line to caudal base and 5 more on latter; 25 above, 24 below. Vertical fins scaly. Left scales ctenoid, right ones cycloid. Scales with 14 to 19 basal radiating striae; 20 to 42 rather short slender apical denticles, with 1 or 2 transverse series of basal elements; circuli fine, more or less complete. Lateral line on both sides, arch  $2 \frac{2}{5}$  to  $3 \frac{2}{5}$  in straight section to caudal base; forward extension reaches base of tenth dorsal ray on left side.

D. 70 to 75, first rays shorter than those following, fin height  $2 \frac{1}{8}$  to  $2 \frac{1}{5}$  in total head length; A. 55 to 58, fin height  $2 \frac{1}{8}$  to  $2 \frac{1}{3}$ ; caudal  $1 \frac{1}{5}$  to  $1 \frac{2}{5}$ , convex behind; least depth of caudal peduncle  $2 \frac{1}{8}$  to  $2 \frac{1}{2}$ ; pectoral  $1 \frac{1}{2}$  to  $1 \frac{2}{3}$ ; ventral  $2 \frac{1}{3}$  to  $2 \frac{3}{4}$ .

Left side brown. Close above and just behind curve of lateral line dark brown to blackish blotch, sprinkled or bordered somewhat with small whitish specks. One or 2 similar spots on lateral line posteriorly. Whole left also with many wide-set or scattered pale to whitish spots, somewhat ringed with darker brown, largest but little larger than eye and others, especially towards edges of body smaller. Fin rays of left side all sprinkled with dark specks, variable. Orbits neutral gray. Right side whitish, only slightly darker specks on rays of vertical fins.

India, Malaya, East Indies, Philippines, Indo China.



7 examples. Buena Vista, Guimaras Island. January 4, 1909.

Length 39 to 120 mm.

D. 5360. Corregidor Light, N.74°W., 6.9 miles (lat. 14°21'N.,  
long. 120°41'E.), Manila Bay. In 12 fathoms. February 7, 1909.

Length 109 mm.

1 example. Panabutan Bay, Mindanao. February 5, 1906.

Length 127 mm.



Pseudorhombus malayanus Bleeker

Pseudorhombus malayanus Bleeker, Nederl. Tijds. Dierk., vol. 3, p. 43,

1866 (type locality : Batavia, Java; Sumatra; Singapore, Borneo;

Celebes; Amboina); Atlas Ichth. Ind. Néerl., vol. 6, p. 7, pl. (3)

234, fig. 2, 1866-72 (above localities). — Alcock, Journ, Asiatic

Soc. Bengal, vol. 58, pt. 1, No. 3, p. 282, 1889 (Bengal Bay). —

Jordan and Richardson, Bull. Bur. Fisher., vol. 27, p. 281, 1907

(1908) (Manila). — Bean and Weed, Proc. U. S. Nat. Mus., vol. 42, p.

610, 1912 (Batavia). — Weber, Siboga Exped., vol. 57, p. 425, 1913

(Madura Strait; Saleyer). — Norman, Rec. Indian Mus., vol. 29, pt. 1,

p. 12, April 1927 (Puri, Balasore Bay, Vizagapatam, Khulusa, Bengal

Bay, Elephant Point, Madras). — Tirant, Serv. Océan. Pêch. Indo

Chine, 6<sup>e</sup> Note, p. 172, 1929 (Phu Yen). — Chevey, Inst. Océan. Indo

Chine, 19<sup>e</sup> Note, p. 27, Aug. 25, 1929 (Annam).

~~Reference to the original description of Pseudorhombus malayanus Bleeker, 1866, in the Atlas Ichth. Ind. Néerl., vol. 6, p. 7, pl. 234, fig. 2, 1866-72 (above localities). — Alcock, Journ, Asiatic Soc. Bengal, vol. 58, pt. 1, No. 3, p. 282, 1889 (Bengal Bay). — Jordan and Richardson, Bull. Bur. Fisher., vol. 27, p. 281, 1907 (1908) (Manila). — Bean and Weed, Proc. U. S. Nat. Mus., vol. 42, p. 610, 1912 (Batavia). — Weber, Siboga Exped., vol. 57, p. 425, 1913 (Madura Strait; Saleyer). — Norman, Rec. Indian Mus., vol. 29, pt. 1, p. 12, April 1927 (Puri, Balasore Bay, Vizagapatam, Khulusa, Bengal Bay, Elephant Point, Madras). — Tirant, Serv. Océan. Pêch. Indo Chine, 6<sup>e</sup> Note, p. 172, 1929 (Phu Yen). — Chevey, Inst. Océan. Indo Chine, 19<sup>e</sup> Note, p. 27, Aug. 25, 1929 (Annam).~~

~~Reference to the original description of Pseudorhombus malayanus Bleeker, 1866, in the Atlas Ichth. Ind. Néerl., vol. 6, p. 7, pl. 234, fig. 2, 1866-72 (above localities). — Alcock, Journ, Asiatic Soc. Bengal, vol. 58, pt. 1, No. 3, p. 282, 1889 (Bengal Bay). — Jordan and Richardson, Bull. Bur. Fisher., vol. 27, p. 281, 1907 (1908) (Manila). — Bean and Weed, Proc. U. S. Nat. Mus., vol. 42, p. 610, 1912 (Batavia). — Weber, Siboga Exped., vol. 57, p. 425, 1913 (Madura Strait; Saleyer). — Norman, Rec. Indian Mus., vol. 29, pt. 1, p. 12, April 1927 (Puri, Balasore Bay, Vizagapatam, Khulusa, Bengal Bay, Elephant Point, Madras). — Tirant, Serv. Océan. Pêch. Indo Chine, 6<sup>e</sup> Note, p. 172, 1929 (Phu Yen). — Chevey, Inst. Océan. Indo Chine, 19<sup>e</sup> Note, p. 27, Aug. 25, 1929 (Annam).~~



Depth  $1 \frac{4}{5}$  to 2; head  $3 \frac{1}{5}$  to  $3 \frac{2}{3}$ , width 4 to  $4 \frac{1}{5}$ . Snout to lower orbit  $4 \frac{7}{8}$  to 5 in head from snout tip; lower orbit 5 to  $5 \frac{1}{4}$ ,  $1 \frac{1}{8}$  to  $1 \frac{1}{5}$  in snout, slightly in advance, opposite or slightly behind upper orbit; maxillary reaches  $\frac{3}{4}$  to hind orbital edge, expansion  $1 \frac{2}{3}$  to  $1 \frac{3}{4}$ , in lower orbit, length 2 to  $2 \frac{1}{4}$  in head from snout tip; bony interorbital narrow, about  $\frac{2}{3}$  pupil diameter. Gill rakers 6 + 9, lanceolate, short, compressed,  $1 \frac{1}{2}$  in gill filaments, which  $\frac{1}{2}$  of lower orbit.

Scales 68 to 70 in lateral line to caudal base and 4 or 5 more on letter; 25 or 26 above, 27 or 28 below. Scales all more or less ctenoid, with row along each dorsal and anal ray and 2 rows on each caudal ray. Scales with 13 to 15 basal radiating striae; 17 to 25 slender terminal apical denticles and 3 or 4 more rows transversely of short basal ones; circuli fine, less distinct apically. Arch of lateral line  $2 \frac{1}{5}$  to  $2 \frac{2}{5}$  in straight section to caudal base.

D. 70 to 72, fin height 2 to  $2 \frac{1}{4}$  in total head length; A. 55 to 60, fin height  $2 \frac{2}{4}$ ; caudal  $1 \frac{1}{5}$  to  $1 \frac{1}{4}$ , forms broad obtuse angle behind; least depth of caudal peduncle  $2 \frac{1}{2}$  to  $2 \frac{3}{4}$ ; pectoral  $1 \frac{1}{3}$  to  $1 \frac{1}{2}$ ; ventral  $2 \frac{1}{2}$  to  $2 \frac{3}{5}$ .

Left side largely dull uniform brown, with trace of very obscure, irregular, variable scattered and slightly larger darker spots. Orbits dull neutral gray. Fins paler than body and traces of very obsolete though slightly darker blotches and specks. Paired fins uniform.

India, Malaya, East Indies, Indo China, Philippines. Appears slightly more even or more uniformly ellipsoid in contour than Pseudorhombus arsius.



21423. Bacoor, Luzon. June 15, 1908. Length 125 mm.

6869. D. 5308. China Sea, vicinity of Hong Kong (lat.  $21^{\circ}54'$  N., long  $115^{\circ}42'E.$ ). In 62 fathoms. November 4, 1908. Length 233 mm.

5204, 5206, 5209. D.5361. Corregidor Light, S.  $89^{\circ}W.$ , 7.2 miles (lat.  $14^{\circ}24'15''N.$ , long.  $120^{\circ}41'30''E.$ ), Manila Bay, Luzon. February 8, 1909. Length 156 to 168 mm.

12285, 12293. Manila market, Luzon. December 12-18, 1908. Length 97 to 121 mm.

1821. D.5204. Mariquitadaquit Island, N.  $83^{\circ}E.$ , 3.50 miles (lat.  $11^{\circ}04'18''N.$ , long.  $125^{\circ}05'30''E.$ ), off east coast of Leyte. In 15 fathoms. April 11, 1908. Length 155 mm.

4265. D.5209. Taratara Island (N.), S.  $53^{\circ}W.$ , 1.80 miles (lat.  $11^{\circ}45'25''N.$ , long.  $124^{\circ}48'05''E.$ ), off western Samar. April 14, 1908. In 20 to 26 fathoms. Length 138 mm.

4502. D.5580. Sibutu Island peak, S.  $82^{\circ}E.$ , 23.2 miles (lat.  $4^{\circ}52'45''N.$ , long.  $119^{\circ}06'45''E.$ ), vicinity of Darvel Bay, Borneo. In 162 fathoms. Length 164 mm.



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E. M. Wade.



Pseudorhombus micrognathus Norman

Pseudorhombus micrognathus Norman, Rec. Indian Mus., vol. 29, pt. 1, p.  
16, pl. 3, April 1927 (type locality : Puri Beach, Orissa).

Pseudorhombus javanicus (not Bleeker) Day, Fishes of India, pt. 3,  
p. 424, 1927 (part). —Jenkins, Mem. Indian Mus., vol. 3, p. 24, 1910.



Depth 2; head  $2 \frac{4}{5}$  to 3, width 4 to  $4 \frac{1}{5}$ . Snout to lower orbit  $3 \frac{2}{3}$  to  $3 \frac{3}{4}$  in head from snout tip; lower orbit  $3 \frac{1}{2}$  to  $3 \frac{2}{3}$ , subequal with snout, in small example about  $\frac{1}{8}$  posterior to front of upper orbit, in larger lower orbit  $\frac{1}{4}$  in advance; maxillary reaches about  $\frac{1}{2}$  in lower orbit, expansion 2, length 2 in head from snout tip; interorbital narrow bony keel. Gill rakers 3 + 9, lanceolate,  $2 \frac{1}{2}$  in lower orbit; gill filaments  $\frac{3}{4}$  of gill rakers.

Scales 64 to 66 in lateral line to caudal base and 5 more on latter; 25 above, 23 below. Vertical fin rays with row of fine scales along basally. Snout and mandible naked, maxillary with few small scales terminally. Scales with 10 or 11 well developed basal radiating striae on left side; 16 or 17 apical denticles with 3 transverse series of basal elements; circuli fine. Right scales cycloid. Lateral line on both sides, arch 2 to  $2 \frac{1}{5}$  in straight section to caudal base.

D. 70, fin height  $2 \frac{1}{8}$  to  $2 \frac{1}{5}$  in total head length; A. 53 or 54, fin height  $2 \frac{1}{8}$ ; caudal  $1 \frac{1}{4}$  to  $1 \frac{2}{5}$ , convex behind; least depth of caudal peduncle 3 to  $3 \frac{1}{8}$ ; pectoral  $1 \frac{1}{4}$  to  $1 \frac{3}{5}$ ; ventral  $2 \frac{1}{2}$  to  $2 \frac{3}{5}$ .

Left side brown, with 5 conspicuous dark brown ocelli, each ringed with white which in larger specimen as rings of small white dots. First as 2 pairs with 2 above and 2 below lateral line of which first upper on arch of lateral line. Fifth ocellus close on lateral line posteriorly. Body, also head on left side, marked with numerous variable whitish spots which also more or less entirely to partly ringed with dark brown, also all smaller than 5 large ocelli. Orbits gray. Dorsal and anal pale, each with row of well spaced blackish brown blotches subbasally alternating with others less distinct and terminally. Caudal with obscure dark blotches. Right side whitish, dark blotches of



vertical fins less distinct than on left side.

India.

Apparently the specific name poorly chosen as its jaws are not short or small. Norman gives "Maxillary scarcely reaching middle of eye, length  $2 \frac{3}{4}$  to nearly 3 in head; length of lower jaw more than twice in head". His figure shows maxillary about  $2 \frac{1}{4}$  in head measured from its front end. In my specimens the mandible is  $1 \frac{2}{3}$  to  $1 \frac{3}{4}$  in the total length of the head.

4361. D.5365. Cape Santiago Light, N.73°W., 6.7 miles (lat. 13°44'24"N., long. 120°45'30"E.), Balayan Bay, Luzon. In 214 fathoms. February 22, 1909. Length 82 mm.

4367. D.5157. Tinakta Island. (N.), S.80°W., 3.30 miles (lat. 5°12'30"N., long. 119°55'50"E.), Sulu Archipelago. In 18 fathoms. February 21, 1908. Length 47 mm.



Pseudorhombus moorei Thominot

Pseudorhombus moorei Thominot, Bull. Soc. Philomath. Paris, ser. 7,

vol. 4, p. 175, 1880 (type locality : Melbourne). —McCulloch,

Austral. Mus. Mem., No. 5, pt. 2, p. 280, Sep. 10, 1929 (reference).



Pseudorhombus multimaculatus Günther

Pseudorhombus multimaculatus Günther, Cat. Fishes Brit. Mus., vol. 4,  
 p. 427, 1862 (type locality : Habitat?). — Meyer, Anal. Soc. Esp.  
 Hist. Nat., Madrid, vol. 14, p. 40, 1885 (north Celebes). —  
McCulloch, Austral. Mus. Mem., No. 5, pt. 2, p. 278, Sep. 10, 1929  
 (compiled).

Platessa sp. Jenyns, Zool. Voy. Beagle, vol. 3, p. 138, 1842 (King  
 George's Sound).

Pseudorhombus multiradiatus Macleay, Proc. Linn. Soc. New South Wales,  
 vol. 7, p. 13, 1883 (error; Port Jackson).

Pseudorhombus novae-cambriae Ogilby, Proc. Linn. Soc. New South Wales,  
 vol. 23, p. 296, 1898 (type locality : Port Jackson); Mem. Queensland  
 Mus., vol. 1, p. 43, 1912 (name).



Pseudorhombus neglectus Bleeker

Pseudorhombus neglectus Bleeker, Nederl. Tijds. Dierk., vol. 3, p. 44,  
 1866 (type locality : Macassar?, Celebes); Atlas Ichth. Ind. Néerl.,  
 vol. 6, p. 8, pl. (3) 234, fig. 1, 1866-72 (type). —Weber, Siboga  
 Exped., vol. 57, p. 424, 1913 (Madeira Sea). —Weber and Beaufort,  
 Fishes Indo Austral Archip., vol. 5, p. 111, 1929 (South China Sea,  
 Riou Strait, Banka, Java, Java Sea, Madura Straits, Makasser Strait).  
 —Chevey, Inst. Océan. Indo Chine, 19<sup>e</sup> Note, p. 27, Aug. 25, 1932  
 (Cochin China; Annam).

Parophrys neglectus Evermann and Seale, Bull. Bur. Fisher., vo. 26, p.  
 105, 1906 (1907) (San Fabian).



Pseudorhombus oligolepis (Bleeker)

Rhombus oligolepis Bleeker, Act. Soc. Sci. Ind. Néerl. (Jap.), vol. 5, p. 8, pl. 2, fig. 2, 1858-59 (type locality : Nagasaki).

Pseudorhombus oligolepis Günther, Cat. Fishes Brit. Mus., vol. 4, p. 430, 1862 (compiled). —Jordan and Starks, Proc. U. S. Nat. Mus., vol. 31, p. 179, 1906 (compiled). —Jordan, Tanaka, Snyder, Journ. College Sci. Tokyo, vol. 33, p. 316, 1913 (reference). —Seale, Philippine Journ. Sci., vol. 9, p. 78, 1914 (Hong Kong). —Izuka and Matsuura, Cat. Zool. Spec. Mus. Tokyo, Vertebr., p. 116, 1920 (Tateyama, Boshu). —Schmidt, Trans. Pac. Comm. Acad. Sci. U. S. S. R., vol. 2, p. 124, 1931 (Nagasaki); Bull. Acad. Sci. U. R. S. S., p. 118, 1931 (Nagasaki).

Paralichthys oligolepis Jordan and Snyder, Annot. Zool. Japon., vol. 3, p. 121, 1903 (reference).

Tarphops olegolepis Jordan and Thompson, Mem. Carnegie Mus., vol. 6, No. 4, p. 307, pl. 39, 1913 (Misaki).

—Jordan and Hubbs, Mem. Carnegie Mus., vol. 10, No. 2, p. 297, 1925 (Toba, Kobe, Tatoku Island). —Chu, Biol. Bull. St. John's Univ., Shanghai, No. 1, p. 91, Jan. 1931 (reference).



Pseudorhombus pentophthalmus Günther

Pseudorhombus pentophthalmus Günther, Cat. Fishes Brit. Mus., vol. 4, p. 428, 1862 (type locality : China). —Bleeker, Nederl. Tijds. Dierk., vol. 4, p. 130, 1873 (1874) (name). —Günther, Rep. Voy. Challenger, vol. 1, pt. 6, p. 69, 1880 (Inland Sea of Japan). —Jordan and Starks, Bull. U. S. Fish Comm., vol. 22, p. 526, 1902 (1904) (Hakodate; Yokohama Bay). —Fowler and Bean, Proc. U. S. Nat. Mus., vol. 62, art. 2, p. 66, 1922 (Takao). —Reeves, Journ. Pan Pac. Res. Inst., vol. 2, No. 3, p. 14, July-Sep. 1927 (Canton). —Fowler, Proc. Acad. Nat. Sci. Philadelphia, 1929, p. 615 (Hong Kong). —Weber and Beaufort, Fishes Indo Austral. Archip., vol. 5, p. 114, 1929 (Kanglang Island). —Chu, Biol. Bull. St. John's Univ., Shanghai, No. 1, p. 90, Jan. 1931 (compiled).

Pseudorhombus russelli (not Gray) Otaki, Journ. Fisher. Bur. Tokyo, p. 6, 1897 (south east Japan).

Pseudorhombus ocellifer Regan, Ann. Mag. Nat. Hist., ser. , vol. , p. 25, 1905 (type locality : Inland Sea of Japan). —Jordan and Starks, Proc. U. S. Nat. Mus., vol. 31, p. 178, 1906 (Nagasaki, Tokyo, Kobe,



Wakanoura, Mororan). —Snyder, Proc. U. S. Nat. Mus., vol. 42, p. 438,  
1912 (Shimizu). —Jordan, Tanaka, Snyder, Journ. College Sci., Tokyo,  
vol. 33, p. 316, 1913 (reference). —Izuka and Matsuura, Cat. Zool.  
Spec. Mus. Tokyo, Vertebr., p. 116, 1920 (Amakusa). —Schmidt and  
Lindberg, Bull. Acad. Sci. U. R. S. S., p. 1147, 1930 (Tsuruga). —  
Schmidt, Bull. Acad. Sci. U. R. S. S., p. 118, 1931 (Nagasaki).



Depth  $1 \frac{9}{10}$  to  $2 \frac{1}{4}$ ; head  $3 \frac{1}{8}$  to  $3 \frac{1}{3}$ , width 4. Snout to lower orbit 4 to  $4 \frac{1}{3}$  in head from snout tip; lower orbit  $4 \frac{1}{3}$  to  $4 \frac{3}{5}$ , subequal with snout, in advance  $\frac{1}{4}$  or opposite to upper orbit; maxillary reaches  $\frac{1}{3}$  to  $\frac{1}{2}$  in lower orbit, expansion  $\frac{2}{3}$  in lower orbit, length  $2 \frac{1}{8}$  to  $2 \frac{1}{4}$  in head from snout tip; bony interorbital narrow trenchant keel, width  $\frac{1}{2}$  of pupil. Gill rakers 4 or 5 + 13 to 15, lanceolate, 1 to 2 in gill filaments, which  $\frac{1}{2}$  lower orbit.

Scales 58 to 70 in lateral line to caudal base and 5 more on latter; 22 above, 29 to 32 below. Scales with 12 to 13 basal radiating striae; 15 to 22 short apical denticles in 3 transverse series; circuli fine, less distinct apically. Right scales cycloid.

D. 63 to 73, fin height  $2 \frac{3}{4}$  in total head length; A. 47 to 53, fin height  $2 \frac{1}{2}$ ; caudal  $1 \frac{1}{3}$ , cuneate behind; least depth of caudal peduncle 3; pectoral  $1 \frac{7}{8}$ ; ventral  $2 \frac{3}{5}$ , followed by strong concealed spine.

Left side brown, with blackish blotch large as orbit at beginning of straight section of lateral line, followed by 3 rather obsolete and smaller blotches. Above lateral line 2 rows of ocelli, similarly below. Iris dark neutral gray. Vertical fins with dark blotches well spaced medially and terminally smaller ones. Pectoral pale, also left ventral with dark dots. Right side white, spots showing through obscurely on vertical fins mostly terminally.

East Indies, Philippines, China, Formosa, Japan.

20463. Catbalogan, Samar. April 15, 1908. Length 151 mm.



Pseudorhombus quinquocellatus Weber and Beaufort

Pseudorhombus quinquocellatus Weber and Beaufort, Fishes Indo Austral.

Archip., vol. 5, p. 104, 1929 (type locality : Strait of Madura, 80  
to 100 meters; near Kanglang Island).



Pseudorhombus spinosus McCulloch

Pseudorhombus spinosus McCulloch, Biol. Res. Endeavour, vol. 2, pt. 3,

p. 129, pl. 25, July 3, 1914 (type locality : Houtmans Abrolhos,

Western Australia); Austral. Mus. Mem., No. 5, pt. 2, p. 279, Sep. 10,

1929 (reference).



Pseudorhombus tenuirastrum (Waite)

Paralichthys tenuirastrum Waite, Mem. Austral. Mus., No. 4, p. 121, pl.

28, text fig. 10, 1899 (type locality : Port Stephens to Port Hacking,

New South Wales, 20 fathoms). —Ogilby, Mem. Queensland Mus., vol. 1,

p. 43, 1912 (name).

Pseudorhombus tenuirastrum McCulloch, Austral. Mus. Mem., No. 5, pt. 2,

p. 279, Sep. 10, 1929 (reference).



Pseudorhombus triocellatus (Schneider)

Pleuronectes triocellatus Schneider, Syst. Ichth. Bloch, p. 145, 1801

(type locality : Tranquebar).

Rhombus triocellatus Valenciennes, Règne Animal, Cuvier, ed. Ill., Poiss.,

p. 304, 1839 ( ). — Jerdon, Madras Journ. Lit. Sci., p.

147, 1851. — Bleeker, Verhand. Batavia, Genoot. (Bengal. Hind.), vol.

25, p. 76, 1853 (reference). — Alcock, Journ. Asiatic Soc. Bengal.

vol. 58, pt. 1, No. 3, p. 283, 1889 (Bengal Bay).

Pseudorhombus triocellatus Günther, Cat. Fishes Brit. Mus., vol. 4, p.

428, 1862 (no locality). — Kner, Reise Novara, Fische, p. 284, 1865

("Tahiti", likely erroneous). — Bleeker, Atlas Ichth. Ind. Néerl.,

vol. 6, p. 9, pl. (8) 239, fig. 1, 1866-72 (Sumatra). — Day, Fishes

of India, pt. 3, p. 424, pl. 92, fig. 1, 1877; Fauna British India,

vol. 2, p. 442, 1889. — Jordan and Starks, Ann. Carnegie Mus., vol.

11, p. 459, 1917 (Ceylon). — Norman, Rec. Indian Mus., vol. 29, pt. 1,

p. 11, April 1927 (Ceylon, Madras, Orissa, Puri, Akyab). — Fowler,

Mem. Bishop Mus., vol. 10, p. 93, 1928 (Kner's record).



Genus Taeniopsetta Gilbert

Taeniopsetta Gilbert, Bull. Bur. Fisher., vol. 23, pt. 2, p. 680, 1903

(1905). (Type Taeniopsetta radula Gilbert, virtually orthotypic.)

Males with tenth or twelfth to fifteenth or eighteenth dorsal and first four or five anal rays produced. In females tenth to thirteenth or fourteenth dorsal and first to third or fourth anal rays produced. Females differ from males in orbital region less spinous, larger eye and shorter filamentous dorsal and anal rays.



Taeniopsetta ocellatus (Günther)

Pseudorhombus ocellatus Günther, Rep. Voy. Challenger, vol. 1, pt. 6, p. 56, pl. 24, figs. A-B (type locality : outside Nares Harbor, Admiralty Islands, 152 fathoms). —Regan, Trans. Linn. Soc. London, ser. 2, vol. 12, Zool., pt. 3, p. 232, 1908 (Saya de Malha Bank, Indian Ocean).

Taeniopsetta ocellatus Norman, Rec. Indian Mus., vol. 29, pt. 1, p. 17, April 1927 (Saya de Malha Bank materials). —Fowler, Mem. Bishop Mus., vol. 10, p. 90, 1928 (part).



Taeniopsetta radula Gilbert

Taeniopsetta radula Gilbert, Bull. U. S. Fish Comm., vol. 23, pt. 2,

p. 680, fig. 266, 1903 (1905) (type locality : Pailolo Channel be-

tween Molokai and Maui, 128 to 13 fathoms; Laysan, 90 to 220 fathoms).

Taeniopsetta ocellatus (not Günther) Fowler, Mem. Bishop Mus., vol. 10,

p. 90, 1928 (Hawaiian Islands).



Genus Arnoglossus Bleeker

Arnoglossus Bleeker, Versl. Med. Kon. Akad. Wet. Amsterdam, vol. 13,

1862, p. 427. (Type Pleuronectes arnoglossus Schneider, monotypic.)

Engyprosopon Günther, Cat. Fishes Brit. Mus., vol. 4, p. 431, 1846.

(Type Rhombus mogki Bleeker, monotypic.)

Anticitharus Günther, Rep. Voy Challenger, vol. 1, pt. 6, p. 47, 1880.

(Type Anticitharus polyspilus Günther, monotypic.)

Scaeops Jordan and Starks, Bull. U. S. Fish Comm., vol. 22, p. 627,

1902 (1904). (Type Rhombus grandisquama Schlegel, orthotypic.)



Eyes on left side, close together. Mouth wide or small. Maxillary more than  $1/3$  of head. Teeth small, conic, unequal, uniserial or biserial in jaws, sometimes irregular canine like ones. Palate toothless. Gill membranes broadly joined below throat. Gill rakers short or long, lanceolate. Scales moderate or small, deciduous, usually ctenoid on colored side, cycloid on blind side. Lateral line well arched over pectoral. Dorsal begins on snout, front rays sometimes prolonged in males. Pectorals sometimes with filamentous rays in males. Right ventral lateral, with short base, begins behind origin of left ventral. Left ventral median, with long base forming prolongation of anal, but not united with same.



Arnoglossus arenicola (Jordan and Evermann)

- Engyprosopon arenicola Jordan and Evermann, Bull. U. S. Fish Comm.,  
vol. 22, p. 207, 1902 (1903) (type locality : Hilo, Hawaii); vol.  
23, pt. 1, p. 515, pl. 62, 1903 (1905) (type). —Jordan and Seale,  
Bull. Bur. Fisher., vol. 25, p. 412, 1905 (1906)(name). —Fowler,  
Mem. Bishop Mus., vol. 10, p. 92, 1928 (type).



Arnoglossus aspilos (Bleeker)

Rhombus aspilos Bleeker, Naturk. Tijds. Ned. Indië, vol. 1, p. 408, 1850

(type locality : Batavia, Java).

Arnoglossus aspilus Günther, Cat. Fishes Brit. Mus., vol. 4, p. 417, 1862

(no locality); Rep. Voy. Challenger, vol. 1, pt. 6, p. 47, 1880 (Arafura

Sea, 30 fathoms). — Weber, Siboga Exped., vol. 57, p. 430, 1913

(Macassar; Lirung, Salibabu). — Chevey, Inst. Océan. Indo Chine, 19<sup>e</sup>

Note, p. 27, Aug. 25, 1932 (Annam).

Arnoglossus aspilos Fowler, Mem. Bishop Mus., vol. 10, p. 89, 1928

(compiled).

Platophrys (Arnoglossus) aspilus Bleeker, Atlas Ichth. Ind. Néerl., vol.

6, p. 15, pl. (6) 237, fig. 2, 1866-72 (Java; Bali, Sumatra).

Bothus (Arnoglossus) aspilus Weber and Beaufort, Fishes Indo Austral.

Archip., vol. 5, p. 132, 1929 (Pulu Weh; Malacca Strait; Banka Strait;

Java Sea; Java; Madura; Celebes; Ambon; Lirung).

Rhombus irroratus (Van Hasselt) Bleeker, Atlas Ichth. Ind. Néerl., vol.

6, p. 15, 1866-72 (name in synonymy).



Depth  $2 \frac{1}{4}$  to  $2 \frac{2}{5}$ ; head 4 to  $4 \frac{1}{5}$ , width  $4 \frac{1}{8}$  to  $4 \frac{3}{4}$ . Snout tip to lower orbit  $4 \frac{1}{2}$  to 5 in head from snout tip; lower orbit 4 to  $4 \frac{1}{5}$ , greater than snout,  $\frac{1}{4}$  to  $\frac{1}{3}$  in advance of upper orbit; maxillary reaches to or  $\frac{1}{8}$  in lower orbit, expansion 3, length  $2 \frac{2}{3}$  to 3 in head from snout tip; interorbital very narrow, with slight groove. Gill rakers 4 + 8 or 9, lanceolate, equal gill filaments or  $2 \frac{1}{2}$  in lower orbit.

Scales 42 to 44 in lateral line to caudal base and 4 or 5 more on latter; 12 above, 12 or 13 below. Muzzle naked. Vertical fins more or less with fine scales basally. Scales very caducous, most all fallen. With 34 to 36 close-set parallel basal striae; 38 to 40 low uniform apical denticles; circuli very fine, continuous. Right scales cycloid. Arch of lateral line  $4 \frac{2}{5}$  to 5 in straight section to caudal base. Lateral line on both sides.

D. 80 to 82, fin height  $1 \frac{2}{5}$  to  $1 \frac{1}{2}$  in total head length; A. 60 or 61, fin height  $1 \frac{2}{5}$  to  $1 \frac{3}{5}$ , preceded by short robust spine; caudal  $3 \frac{3}{5}$  to 4 in rest of fish, convex behind; least depth of caudal peduncle  $2 \frac{1}{5}$  to  $2 \frac{1}{4}$  in total head length; pectoral  $1 \frac{3}{5}$  to  $1 \frac{3}{4}$ ; ventral  $1 \frac{2}{3}$ .

Left side ochraceous buff, becoming buff towards edges of body. Orbits gray. Vertical fins pale or light, slightly grayish terminally. Right side whitish. Left paired fins with some faint gray spots, right ones uniformly white.

East Indies, Malaya, Indo-China.



D. 5461. Caringo Island (W.), N.12°W., 4.9 miles (lat. 13°57' 42"W., long. 123°06'42"E.), east coast of Luzon. In 11 fathoms. June 14, 1909. Length 53 to 87 mm. 28 examples.



Arnoglossus bassensis Norman

Arnoglossus bassensis Norman, Biol. Res. Endeavour, vol. 5, pt. 5, p. 246,  
fig. 6, June 15, 1926 (type locality : east coast Flinders Island, Bass  
Strait). McCulloch, Austral. Mus. Mem., No. 5, vol. 2, p. 277, Sep.  
10, 1929 (reference).



Arnoglossus bleekeri Macleay

Arnoglossus bleekeri Macleay, Proc. Linn. Soc. New South Wales, vol. 6,

pt. 1, p. 124, July 1881 (type locality : Endeavour River). —

McCulloch, Austral. Mus. Mem., No. 5, pt. 2, p. 277, Sep. 10, 1929

(reference).



Arnoglossus cocosensis (Bleeker)

Rhombus cocosensis Bleeker, Naturk. Tijds. Nederl. Indië, vol. 8, p. 179,

1855 (type locality : Cocos-Keeling Island, Indian Ocean).

Platophrys (Arnoglossus) cocosensis Bleeker, Atlas Ichth. Ind. Néerl.,

vol. 6, p. 13, pl. (14) 235, fig. 1, 1866-72 (type).

Engyprosoon cocosensis Norman, Records Indian Mus., vol. 29, pt. 1, April

1927, p. 24 (Nicobars; Cape Negrais; Travancore).

Bothus (Arnoglossus) cocosensis Weber and Beaufort, Fishes Indo Austral.

Archip., vol. 5, p. 428, 1929 (Cocos Island).

Scianectes macrophthalmus (not Alcock) Jenkins, Mem. Indian Mus., vol. 3,

p. 27, 1910 (part).



Arnoglossus debilis (Gilbert)

Anticitharis debilis Gilbert, Bull. U. S. Fish Comm., vol. 23, pt. 2, p.

683, pl. 97, 1903 (1905) (type locality : Pailolo Channel between

Molokai and Maui; off Molokai; 122 to 220 fathoms). —Fowler, Mem.

Bishop Mus., vol. 10, p. 90, 1928 (Hawaiian Islands; type).



Arnoglossus elongatus Weber

Arnoglossus elongatus Weber, Siboga Exped., vol. 57, p. 431, fig. 79,

1913 (type locality : lat. 7°2'6S., long. 115°23'6E., Madura Sea,

100 meters).

Bothus (Arnoglossus) elongatus Weber and Beaufort, Fishes Indo Austral.

Archip., vol. 4, p. 125, fig. 29, 1929 (type; Madura Strait; Bali?).



Arnoglossus filimanus (Regan)

Scaeops filimanus Regan, Trans. Linn. Soc. London, ser. 2, vol. 12,

Zool., pt. 3, p. 234, pl. 25, fig. 2, 1908 (type locality : Maldives, 27 to 44 fathoms).

Engyprosopon filimanus Norman, Records Indian Mus., vol. 29, pt. 1,

p. 27, April 1927 (types).



Arnoglossus finsoni Ogilby

Arnoglossus finsoni Ogilby, Proc. Linn. Soc. New South Wales, vol. 23,  
pt. 3, p. 295, Dec. 9, 1898 (type locality : off Caloundra Head,  
Moreton Bay, Queensland). — McCulloch, Austral. Mus. Mem., vol. 5,  
pt. 2, p. 277, Sep. 10, 1929 (reference).



Arnoglossus grandisquama (Schlegel)

Rhombus grandisquama Schlegel, Fauna Japonica, Poiss., pts. 10-14, p. 183,

pl. 92, figs. 3-4, 1846 (type locality : Japan).

Rhomboidichthys grandisquama Günther, Cat. Fishes Brit. Mus., vol. 4, p.

437, 1862 (China; "Gulf of Fonseca"). — Ishikawa and Matsuura, Prelim.

Cat. Fishes Mus. Tokyo, p. 25, 1897.

Platophrys (Platophrys) grandisquama Bleeker, Nederl. Tijds. Dierk., vol.

4, p. 130, 1873 (1874) (China).

Platophrys grandisquama Gilchrist, Marine Investig. South Africa, vol. 4,

p. 161, 1908 (Amatikulu River mouth, 26 fathoms).

Engyprosopon grandisquamis Jordan and Snyder, Annot. Zool. Japon., vol. 3,

p. 122, 1901 (reference).

Engyprosopon grandisquama Norman, Biol. Res. Endeavour, vol. 5, p. 250,

1926

Records Ind. Mus., vol. 29, pt. 1, p. 25, fig. 5, April 1927 (Mekran;

Arakan; Nicobars; Muscat; Gulf of Orman; Maldives; Galle, Ceylon).



Scaeops grandisquama Jordan and Starks, Bull. U. S. Fish Comm., vol. 22,  
 p. 627, 1902 (1904) (Owari Bay; Sagami Bay); Proc. U. S. Nat. Mus.,  
 vol. 31, p. 168, fig. 1, 1906 (Wakanoura; Nagasaki). —Snyder, Proc.  
 U. S. Nat. Mus., vol. 42, p. 438, 1912 (Shimizu). —Jordan, Tanaka,  
Snyder, Journ. College Sci. Tokyo, vol. 33, p. 313, fig. 262, 1913  
 (reference). —Izuka and Matsuura, Cat. Zool. Spec. Mus. Tokyo, Vertebr.,  
 p. 116, 1920 (Misaki). —Barnard, Ann. South African Mus., vol. 21,  
 pt. 1, p. 387, June 1925. —Reeves, Journ. Pan Pac. Res. Inst., vol. 2,  
 No. 3, p. 14, July-Sep. 1927 (name). —Chu, Biol. Bull. St. John's Univ.,  
 Shanghai, No. 1, p. 90, Jan. 1, 1931 (reference). —Schmidt, Bull. Acad.  
 Sci. U. R. S. S., p. 118, 1931 (Nagasaki).

Rhombus poecilurus Bleeker, Naturk. Tijds. Nederl. Indië, vol. 3, p. 293,  
 1852 (type locality : Amboina).

Pseudorhombus poecilurus Bleeker, Nederl. Tijds. Dierk., vol. 2, p. 274,  
<sup>1865</sup>~~1863~~ (reference).

Platophrys (Arnoglossus) poecilurus Bleeker, Atlas Ichth. Ind. Néerl.,  
 vol. 6, p. 14, pl. (5) 236, fig. 1, 1866-72 (Banka; Amboina).



Rhomboidichthys poecilurus Regan, Journ. Bombay Soc. Nat. Hist., vol. 16, No. 2, p. 332, 1905 (Muscat).

Scaeops poecilura Jordan and Seale, Proc. U. S. Nat. Mus., vol. 28, p. 803, 1905 (Negros). —Jordan and Richardson, Bull. Bur. Sci. Manila, p. 54, 1910 (name).

Scaeops poecilurus Regan, Trans. Linn. Soc. London, ser. 2, vol. 12, pt. 3, Zool., p. 233, 1908 (Suvadiva, Maldives, 33 to 34 fathoms). —Weber, Siboga Exped., vol. 57, p. 429, 1913 (west of New Guinea; Saleyer; Sumbawa).

Bothus (Arnoglossus) poecilurus Weber and Beaufort, Fishes Indo Austral. Archip., vol. 5, p. 131, fig. 31, 1929 (Sumatra; Java Sea; south of New Guinea; Weber's materials).

Rhomboidichthys spilurus Günther, Rep. Voy. Challenger, vol. 1, pt. 6, p. 47 (53), pl. 21, fig. A, 1880 (type locality : South of New Guinea; Cebu Straits; Philippines). —Regan, Fauna Geog. Maldive and Laccadive Archip., Gardner, vol. 1, pt. 3, p. 277, 1902 (Suvadiva).

Arnoglossus spilurus Johnstone, Pearl Oyster Rep. Ceylon, vol. 2, Fishes, P. 211, 1904.



Scaeops spilura Jordan and Seale, Bull. Bur. Fisher., vol. 25, p. 412,

1905 (1906) (name). — Jordan and Richardson, Bull. Bur. Sci. Manila,  
p. 54, 1910 (name).

Rhomboidichthys spiniceps Macleay, Proc. Linn. Soc. New South Wales, vol.

6, pt. 1, p. 127, July 1881 (type locality : Port Jackson).

Rhomboidichthys valderostratus (not Alcock) Jenkins, Mem. Indian Mus.,

vol. 3, p. 26, 1910 (part).

Engyprosopon (Scaeops) grandisquama (not Schlegel) McCulloch and Whitley,

Rec. Austral. Mus., vol. 14, pt. 4, p. 343, fig. 1, 1925 (holotype  
of Rhomboidichthys spiniceps).

Engyprosopon grandisquama McCulloch, Austral. Mus. Mem., No. 5, pt. 2,

p. 276, Sep. 10, 1939 (compiled).



Depth 2; head  $3 \frac{3}{4}$  to 4, width  $3 \frac{7}{8}$  to 4. Snout to lower orbit  $4 \frac{3}{5}$  to  $4 \frac{3}{4}$  in head from snout tip; lower orbit  $3 \frac{2}{3}$  to 4, greater than snout, greater than bony interorbital in females and subequal males; lower orbit  $\frac{1}{4}$  in advance of upper; maxillary reaches  $\frac{1}{5}$  to  $\frac{1}{4}$  in lower orbit, expansion  $4 \frac{3}{4}$  to 5, length 3 to  $3 \frac{1}{5}$  in head from snout tip; interorbital concave. Gill rakers 0 + 7, lanceolate,  $1 \frac{1}{4}$  in gill filaments, which  $2 \frac{1}{5}$  in lower orbit.

Scales 40 to 42 in lateral line to caudal base and 4 or 5 more on latter; 12 above, 16 below. Front of muzzle and snout, including maxillary, naked. Row of small scales basally along each ray of vertical fins, though caudal more extensively scaly basally. Scales with 50 to 52 fine parallel radiating basal striae; 65 to 70 very short uniform apical denticles; circuli very fine, mostly continuous. Right scales cycloid. Lateral line on both sides, arch  $3 \frac{3}{4}$  in straight section to caudal base.

D. 83 to 86, fin height  $1 \frac{7}{8}$  to  $2 \frac{1}{10}$  in total head length; A. 60 to 63, fin height 2 to  $2 \frac{1}{8}$ ; caudal  $1 \frac{1}{8}$  to  $1 \frac{1}{4}$ , convex behind; least depth of caudal peduncle 2 to  $2 \frac{1}{8}$ ; pectoral  $1 \frac{1}{5}$  to  $1 \frac{1}{3}$ ; ventral  $1 \frac{2}{7}$  to  $1 \frac{3}{4}$ , followed by concealed spine.

Burnt umber to vandyke brown on left side, finely mottled with very fine dots, spots or specks of -dark- and also innumerable pale to drab fine markings, none of markings pronounced. Vertical fins with pale membranes, rays and scales dotted or sprinkled with dark specks, more extensive on caudal as rays broader. Last also with 2 large conspicuous black spots long as eye, each behind middle of fin length and close to upper and lower margin respectively. Left ventral dark specked on rays like anal. Right ventral and pectoral whitish rest of side, vertical fins only showing grayish terminally, 2 large caudal spots in distinct. Left pectoral with rays finely dotted with blackish.



Arabia, East Africa, South Africa, Maldives, Nicobars, Ceylon,  
Burma, East Indies, Philippines, China, Japan, New South Wales.

In Norman's outline figure of Engyprosopon grandisquama the 2 black  
marginal caudal spots are shown before the middle in the length of  
the fin, a condition I have not seen in any specimen.



4408. D.5181. Antonia Island (S.), S.63°W., 5.60 miles (lat. 11°36'50"N., long. 123°26'35"E.), off eastern Pinang. In 26 fathoms. March 27, 1908. Length 83 mm.

20733. Balayan Bay, Taal. January 19, 1908. Length 80 mm.

4400. D.5134. Balukbaluk Island (N.), S.59°W., 6.25 miles (lat. 5°44'45"N., long. 121°48'E.), Sulu Archipelago. In 25 fathoms. February 7, 1908. Length 30 mm.

21755. Cebu, Cebu market. March 28, 1909. Length 85 mm.

10040. D.5304. China Sea, vicinity of Hong Kong (lat. 21°46'N., long. 114°47'E.). In 34 fathoms. August 9, 1908. Length 30 mm.

3247, 3248. D.5360. Corregidor Light, N.74°W., 6.9 miles (lat. 14°21'N., long. 120°41'E.), Manila Bay. In 12 fathoms. February 7, 1909. Length 52 to 97 mm. 10 examples.

1 example. Davao, Mindanao. May 16, 1908. Length 73 mm.

19409. Iloilo market, Panay. March 28, 1908. Length 60 mm.

2372, 2373. D.5131. Island off Panabutan Point, N.20°#, 0.40 mile. In 27 fathoms. February 6, 1908. Length 60 to 73 mm.

D.5641. Kalono Point (W.), N.61°W., 3.4 miles (lat. 4°29'24"S., long. 122°52'30"E.), Buton Strait. In 39 fathoms. December 14, 1909.

Length 65 mm.



D.5640. Labuan Blanda Island, N.88°E., 1 mile (lat. 4°27'S., long. 122°55'40"E.), Buton Strait. In 24 fathoms. December 13, 1909. Length 57 or 58 mm. 2 examples. These examples largely with more contrasted color pattern, chiefly as large blotches of dark or black brown over left side of fish.

19505. Ragay, Ragay Gulf, Luzon. March 10, 1909. Length 45 to 51 mm. 3 examples.

20015. Sangley Point, Cavite, Luzon. March 23, 1908. Length 78 mm.

20894, 20895. Santiago River, Mariveles, Luzon. January 29, 1909. Length 54 to 87 mm.

8315. Subig Bay, Luzon. January 7, 1908. Length 78 mm. 2 examples.

1 example. Tilig, Lubang. July 14, 1908. Length 70 mm.

20553. Tilig, Lubang. July 14, 1908. Length 68 mm.

4365, 4366. D.5157. Tinakta Island (N.), S.80°W., 3.30 miles (lat. 5°12'30"N., long. 119°55'50"E.), Sulu Archipelago. In 18 fathoms. February 21, 1908. Length 45 to 61 mm. 2 examples.



Arnoglossus hawaiiensis (Jordan and Evermann)

Engyprosopon hawaiiensis Jordan and Evermann, Bull. U. S. Fish Comm.,  
vol. 22, p. 207, 1902 (1903) (type locality : Hilo, Hawaii); vol.  
23, pt. 1, p. 514, fig. 227, 1903 (1905) (type). —Gilbert, Bull.  
U. S. Fish Comm., vol. 23, pt. 2, p. 687, 1903 (1905) (off Maui, 10  
to 14 fathoms). —Jordan and Seale, Bull. Bur. Fisher. vol. 25, p.  
412, 1905 (1906) (name). —Fowler, Copeia, No. 112, p. 84, Nov. 20,  
1922 (Hawaii); Mem. Bishop Mus., vol. 10, p. 92, 1928 (Maui; type).



Arnoglossus intermedius (Bleeker)

Platophrys (Arnoglossus) intermedius Bleeker, Nederl. Tijdschr. Dierk.,

vol. 3, p. 47, 1866 (type locality : Menado, Celebes); Atlas Ichth.

Ind. Néerl., vol. 6, p. 14, pl. (1) 232, fig. 1, 1866-72 (type).

Rhomboidichthys intermedius Regan, Fauna Geog. Maldive Laccadive Arch.,

Gardner, vol. 1, p. 277, 1903 (Sewadiva; Felidu).

Engyprosopon intermedius Regan, Trans. Linn. Soc. London, ser. 2, vol.

12, pt. 3, Zool., p. 235, 1908 (Suvadiva; Diego Garcia; Seychelles;

10 to 44 fathoms).

Arnoglossus intermedius Norman, Biol. Res. Endeavour, vol. 5, p. 243, 1926

Records Ind. Mus., vol. 29, pt. 1, p. 21, pl. 4, April 1927 (Seychelles;

Maldives). —Fowler, Mem. Bishop Mus., vol. 10, p. 90, 1928 (Shortland

Island, Solomons). —McCulloch, Austral. Mus. No. 5, pt. 2, p. 277,

Sep. 10, 1929 (reference).



Bothus (Arnoglossus) intermedius Weber and Beaufort, Fishes Indo Austral.

Archip., vol. 5, p. 130, 1929 (Java Sea; Weber's material), p. 428

(reference).

Anticitharus annulatus Weber, Siboga Exped., vol. 57, p. 433, pl. 11, fig.

5, 1913 (type locality : Djampeah; Timor Sea).

Arnoglossus annulatus Norman, Rec. Indian Mus., vol. 29, pt. 1, p. 19,

April 1927 (Nankauri Harbor, Nicobars).

Depth  $1 \frac{4}{5}$  to 2; head  $3 \frac{1}{3}$  to  $3 \frac{2}{5}$ , width 3 to  $3 \frac{1}{2}$ . Snout tip to lower orbit  $4 \frac{1}{4}$  to  $4 \frac{1}{2}$  in head from snout tip; lower orbit  $2 \frac{7}{8}$  to 3, greatly exceeds snout,  $\frac{1}{2}$  in advance of upper; maxillary reaches to front edge of lower orbit or  $\frac{1}{5}$  in lower orbit, expansion  $3 \frac{1}{2}$  to 4 in lower orbit, length  $2 \frac{3}{4}$  to  $2 \frac{7}{8}$  in head from snout tip. interorbital width  $1 \frac{4}{5}$  to 3 in lower orbit, rather deeply and evenly concave. Gill rakers 0 + 7, lanceolate,  $\frac{1}{2}$  of gill filaments, which  $2 \frac{4}{5}$  in lower orbit.

Scales 40 to 43 in lateral line to caudal base and 5 or 6 more on latter; 12 or 13 above, 12 or 13 below. Caudal scaly basally, dorsal and anal medial rays each with row of fine scales from base. Scales with 47 to 50 close parallel basal striae, outermost little divergent; 30 to 33 short nearly uniform apical denticles; circuli very fine, continuous. Scales cycloid on blind side. Lateral line on both sides, or as inconspicuous pores on right side; arch anteriorly on left side  $2 \frac{2}{3}$  to  $3 \frac{1}{8}$



in straight section to caudal base.

D. 80 to 83, fin height  $2 \frac{1}{4}$  to  $2 \frac{1}{3}$  in total head length;  
A. 57 to 60, fin height 3 to  $3 \frac{3}{4}$ ; caudal  $1 \frac{1}{3}$  to  $1 \frac{3}{5}$ , convex behind;  
least depth of caudal peduncle  $2 \frac{4}{5}$  to 3; pectoral  $2 \frac{1}{8}$  to  $2 \frac{3}{5}$  in  
combined head and body to caudal base, upper ray ending in long filament;  
ventral  $1 \frac{2}{5}$  to  $1 \frac{3}{4}$  in total head length.

Pale brown generally on left side, inclining to buff marginally  
on body and more or less obscurely variegated with darker brown. Orbits  
dark neutral gray. Fins brownish, rays specked with dusky. Right side  
whitish; vertical fins with only indistinct brownish or darker dots.

Laccadives, Maldives, Seychelles, Nicobars, East Indies, Austral-  
ia, Melanesia. As my examples are all small, none show the first dorsal  
ray nearly so prolonged as in Norman's figure. Their type of coloration,  
is however, with traces of spots much as he shows. The males with elonga-  
ted pectorals also show about 4 large dark cross blotches.

4398, 4400. D.5134. Balukbaluk Island (N.) S.59°W., 6.25 miles  
(lat. 6°44'45"N., long. 121°48'E.), Sulu Archipelago. In 25 fathoms.  
February 7, 1908. Length 59 to 60 mm.

4415. D.5099. Corregidor Light, N.36°E., 4.80 miles (lat. 14°  
18'55"N., long. 120°31'20"E.), China Sea off southern Luzon. In 30 fath-  
oms. January 2, 1908. Length 50 mm.

4424. D.5144. Jolo Light, S.50°W., 3.40 miles (lat. 6°05'50"N.,  
long. 121°02'15"E.), vicinity of Jolo. In 19 fathoms. February 15, 1908.  
Length 53 mm.



D.5400. Tanguingui Island Light, N.77°W., 22.5 miles (lat. 11°24'24"N., long. 124°05'30"E.), north of Cebu. In 25 fathoms. March 16, 1909. Length 44 mm.

D.5401. Tanguingui Island Light, N.79°W., 23 miles (lat. 11°24'45"N., long. 124°06'E.), north of Cebu. In 30 fathoms. March 16, 1909. Length 38 to 51 mm. 2 examples.



Arnoglossus japonicus Hubbs

Arnoglossus japonicus Hubbs, Proc. U. S. Nat. Mus., vol. 48, p. 454,

pl. 25, fig. 2, 1915 (type locality : Vincennes Strait, south of

Kiusiu, Japan; Suruga Gulf; off east coast of Hondo.



Arnoglossus kobensis (Jordan and Starks)

Scaeops kobensis Jordan and Starks, Proc. U. S. Nat. Mus., vol. 31,  
p. 170, fig. 2, 1906 (type locality : Kobe). —Jordan, Tanaka,  
Snyder, Journ. College Sci., vol. 33, p. 312, fig. 261, 1913  
(copied). —Izuka and Matsuura, Cat. Zool. Spec. Tokyo Mus.,  
Vertebr., p. 116, 1920 (Enoura, Suruga).

Engyprosopon kobense Tanaka, Journ. Fac. Sci. Univ. Tokyo, sect. 4,  
Zool., vol. 3, pt. 1, p. 38, Nov. 4, 1931 (name).



Arnoglossus latifrons (Regan)

Scaeops latifrons Regan, Trans. Linn. Soc. London, ser. 2, vol. 12, Zool.,

pt. 3, p. 233, pl. 25, fig. 3, 1908 (type locality : Maldives;

Seychelles; Saya de Malha Bank; Cargados Carajos).

Engyprosopon latifrons Norman, Rec. Indian Mus., vol. 29, pt. 1, p. 27,

April 1927 (Regan's material).



Arnoglossus macrolepis (Regan)

Scaeops macrolepis Regan, Trans. Linn. Soc. London, ser. 2, vol. 12,

Zool., pt. 3, p. 233, pl. 27, fig. 4, 1908 (type locality : Cargados  
Carajos, 20 to 30 fathoms).

Engyprosopon macrolepis Norman, Rec. Indian Mus., vol. 29, pt. 1, p.

27, April 1927 (type).



Arnoglossus maldivensis (Regan)

Scaeops maldivensis Regan, Trans. Linn. Soc. London, vol. 12, Zool.,

p. 234, pl. 25, fig. 1, 1908 (type locality : Maldives, 27 to 44 fathoms).

Engyprosopon maldivensis Norman, Rec. Indian Mus., vol. 29, pt. 1,

p. 27, April 1927 (types).



Arnoglossus malhensis Regan

Arnoglossus malhensis Regan, Trans. Linn. Soc. London, ser. 2, vol. 12,  
pt. 3, Zool., p. 235, pl. 26, fig. 2, 1908 (type locality : Saya de  
Malha Bank, over 123 fathoms). —Norman, Rec. Indian Mus., vol. 29,  
pt. 1, p. 21, April 1927 (type).



Arnoglossus microstoma (Weber)

Platophrys microstoma Weber, Siboga Exped., vol. 57, p. 427, pl. 7,

fig. 3, 1913 (type locality : Jedan Island of Aru Islands, 13 meters).

Bothus (Arnoglossus) microstoma Weber and Beaufort, Fishes Indo Austral.

Archip., vol. 5, p. 126, 1929 (type).

Bothus microstoma Chevey, Inst. Océan. Indo Chine, 19<sup>e</sup> Note, p. 27, Aug.

25, 1932 (Annam; Cochin China; Poulo-Condore).



Arnoglossus muelleri (Klunzinger)

Pseudorhombus muelleri Klunzinger, Archiv Naturges., vol. 38, pt. 1,  
p. 40, 1872 (type locality : Hobson's Bay, Victoria).

Pseudorhombus mulleri Klunzinger, Sitzs. Ber. Akad. Wiss. Wien, Math.-  
nat. Kl., vol. 80, pt. 1, p. 407, pl. 9, fig. 2, 1879 (types).

Paralichthys mulleri Waite, Rec. Austral. Mus., vol. 6, pt. 2, p. 73,  
1902 (between Fremantle and Houtman's Abrolhos).

Arnoglossus meulleri McCulloch, Austral. Mus. Mem., vol. 5, pt. 2,  
p. 277, Sep. 10, 1929 (compiled).



Arnoglossus mogkii (Bleeker)

Rhombus mogkii Bleeker, Naturk. Tijds. Nederl. Indië, vol. 7, p. 256,

1854 (type locality : Manado, Celebes).

Rhomboidichthys mogkii Günther, Cat. Fishes Brit. Mus., vol. 4, p. 438,

1862 (no locality).

Pseudorhombus mogki Bleeker, Nederl. Tijds. Dierk., vol. 1, p. 230,

1863 (Ternate).

Platophrys (Arnoglossus) mogki Bleeker, Atlas Ichth. Ind. Néerl., vol.

6, p. 14, pl. (2) 233, fig. 1, 1866-72 (Singapore; Bali; Celebes;

Ternate; Buru; Amboina; Ceram).

Engyprosopon monghi Weber, Siboga Exped., vol. 57, p. 429, 1913 (Kawa,

Ceram).

Engyprosopon mogkii Norman, Rec. Indian Mus., vol. 29, pt. 1, p. 27,

pl. 5, April 1927 (lat. 7°N., long. 76°E., 102 to 105 fathoms;

Indian Archipelago).

Bothus (Arnoglossus) mogki Weber and Beaufort, Fishes Indo Austral.

Archip., vol. 5, p. 128, fig. 30, 1929 (Puluh Weh; Weber's materials);

p. 428 (reference).



Depth  $1 \frac{3}{4}$  to  $1 \frac{7}{8}$ ; head  $3 \frac{3}{4}$  to  $3 \frac{7}{8}$ . width 3 to  $3 \frac{1}{5}$ . Snout to lower orbit  $4 \frac{1}{5}$  to 5 in head from snout tip; lower orbit  $3 \frac{3}{5}$  to  $3 \frac{4}{5}$ , greatly exceeds snout,  $\frac{1}{4}$  to  $\frac{1}{3}$  in advance of upper orbit; maxillary reaches to or  $\frac{1}{5}$  in lower orbit, narrow, length 3 to  $3 \frac{1}{5}$  in head from snout tip; interorbital  $2 \frac{1}{2}$  to  $3 \frac{1}{3}$  in lower orbit, concave, scaly. Gill rakers 0 - 7, lanceolate,  $1 \frac{1}{4}$  in gill filaments, which  $1 \frac{4}{5}$  in lower orbit.

Scales 47 to 49 in lateral line to caudal base and 4 or 5 more on latter; 16 above, 20 below. Caudal base well scaled and most of dorsal and anal rays each with row of small scales from base. Scales with 27 to 100 fine basal more or less parallel striae, diverging above and below; 20 to 30 rather short slender uniform apical denticles; circuli very fine. Scales ctenoid on left side, cycloid on right side. Lateral line on both sides, anterior arch  $4 \frac{2}{5}$  to  $4 \frac{3}{5}$  in straight section to caudal base.

D. 80 to 84, fin height 2 to  $2 \frac{1}{6}$  in total head length; A. 61 to 63, fin height  $1 \frac{7}{8}$  to 2; caudal 1 to  $1 \frac{1}{8}$ , convex behind; least depth of caudal peduncle  $1 \frac{7}{8}$  to  $2 \frac{1}{4}$ ; pectoral  $1 \frac{2}{5}$  to  $1 \frac{2}{3}$ ; ventral  $1 \frac{1}{3}$  to  $1 \frac{2}{5}$ .

Variably brown to dark or neutral brown on left side, finely mottled or specked with deeper to dusky brown. Along straight section of lateral line 5 or 6 blackish variable blotches or spots, frequently obscured. Mottled coloring of body also extended on fin rays. Orbits slate or neutral black. Right side whitish, fins grayish.

Malaya, East Indies, Philippines.

12 examples. Abuyog, Leyte. July 26, 1909. Length 53 to 70 mm.

9 examples. Batangas market. June 7, 1908. Length 34 to 72 mm.

29 examples. Below mouth of Mindanao River, Cotabato, Mindanao. May 20, 1908. Length ~~XXXX~~ 33 to 71 mm.

1 example. Davao, Mindanao. May 16, 1908. Length 39 mm.

6 examples. Guijulugan, Negros. April 2, 1908. Length 29 to 68 mm.



21 examples. Huninangan beach, Leyte. July 30, 1909. Length 46 to 64 mm.

9 examples. Lagoon shore San Vicente harbor. November 13, 1908. Length 28 to 57 mm.

4 examples. Luzon shore, San Vicente harbor, November 13, 1908. Length 26 to 50 mm.

5239 to ~~5241~~<sup>5241</sup>. Malabang, Mindanao. May 21, 1908. Length 91 to 103 mm.

5 examples. Mansalay, Mindoro. June 4, 1908. Length 44 to 58 mm.

17 examples. Mantaquin Bay, Palawan. April 1, 1909. Length 35 to 58 mm.

6 examples. Mantaquin Bay. April 2, 1909. Length 45 to 60 mm.

22015. Mariveles Bay, Luzon. January 27, 1909. Length 46 to 54 mm. 3 examples.

4 examples. Nasugbu, Luzon. January 16, 1908. Length 40 to 54 mm.

1 example. Near mouth Tayabas River. February 25, 1909. Length 38 mm.

1 example. Nogas Point, Panay. February 4, 1908. Length 72 mm.

2 examples. Panabutan Bay, Mindanao. February 5, 1906. Length 38 mm.

8436. Port Jamelo, Luzon. July 13, 1908. Length 52 to 57 mm. 2 examples.

6 examples. Port San Vicente. November 13, 1908. Length 35 to 48 mm.

20014. Sangley Point, Cavite, Luzon. March 23, 1908. Length 65 mm.

20504. Santa Maria, Siquijor Island. August 11, 1909. Length 98 mm.



11 examples. Subig Bay, Olingapao. January 7, 1908. Length  
41 to 74 mm.

2 examples. Tilig, Lubang. July 14, 1908. Length 43 to 79  
mm.

4 examples. Verde del Sur Island, Palawan. April 6, 1909.  
Length 47 to 60 mm.



Arnoglossus polypilus (Günther)

Anticitharus polypilus Günther, Rep. Voy. Challenger, vol. 1, pt. 6, p. 48, pl. 22, fig. A. 1880 (type locality : Ki Islands, 129 fathoms).

—Weber, Siboga Exped., vol. 57, p. 433, 1913 (Timor Sea).

Pseudorhombus polypilus Jordan and Seale, Bull. Bur. Fisher., vol. 26, p. 45, 1906 (1907) (Cavite). —Jordan and Richardson, Bull. Bur. Sci. Manila, p. 54, 1910 (name).

Arnoglossus polypilus Norman, Records Indian Mus., vol. 29, pt. 1, p. 20, April 1927 (Mergui Archipelago, 65 fathoms).

Bothus (Anticitharus) polypilus Weber and Beaufort, Fishes Indo Austral. Archip., vol. 5, p. 124, 1929 (type; south Java; Kei Islands; Timor Sea material), p. 428 (reference).



Arnoglossus profundus Weber

Arnoglossus profundus Weber, Siboga Exped., vol. 57, p. 430, pl. 6, fig. 3,

1913 (type locality : lat. 7°2'6S., long. 115°23'6E., Madura Sea, 100 meters; lat 9°0'3S., long. 126°24'5E., Timor Sea, 112 meters).

Bothus (Arnoglossus) profundus Weber and Beaufort, Fishes Indo Austral.

Archip., vol. 5, p. 127, 1929 (Weber's materials; Madura Strait; Java Sea; south coast of Java).



Arnoglossus sechellensis (Regan)

Scaeops sechellensis Regan, Trans. Linn. Soc. London, ser. 2, vol. 12,  
Zool., pt. 3, p. 234, pl. 27, fig. 5, 1908 (type locality : Seychelles,  
37 fathoms).

Engyprosopon sechellensis Norman, Rec. Indian Mus., vol. 29, pt. 1, p.  
27, April 1927 (type).



Arnoglossus tapeinosoma (Bleeker)

Platophrys (Arnoglossus) tapeinosoma Bleeker, Nederl. Tijds. Dierk.,

vol. 3, p. 49, 1866 (type locality : Padang, Sumatra); Atlas Ichth.

Ind. Néerl., vol. 6, p. 13, pl. (4) 235, fig. 4, 1866-72 (type);

Nederl. Tijds. Dierk., vol. 4, p. 116 (130), 1873 (1874) (China).

Arnoglossus tapeinosoma Reeves, Journ. Pan Pac. Res. Inst., vol. 2, No. 3,

p. 14, July-Sep. 1927 (Hong Kong). —Chu, Biol. Bull. St. John's Univ.,

No. 1, p. 90, Jan. 1931 (reference).

Bothus (Arnoglossus) tapeinosoma Weber and Beaufort, Fishes Indo Austral.

Archip., vol. 5, p. 127, 1929 (Malacca Strait; Java Sea; Saleyer; Waigieu).



Arnoglossus macrolophus Alcock, Journ. Asiatic Soc. Bengal, vol. 58, pt.

2, p. 280, pl. 18, fig. 2, 1889 (type locality : Five miles south of

Ganjam in 25 fathoms); Ann. Mag. Nat. Hist., ser. 6, vol. 6, p. 433,

1890. Journ. Asiatic Soc. Bengal, vol. 65, pt. 2, p. 237, 1896 ;

Illustrat. Zool. Investigator, pt. 5, pl. 23, fig. 3, 1898 (type). —

Johnstone, Pearl Oyster Rep. Ceylon, No. 2, p. 211, 1904 (Ceylon ).

—Norman, Rec. Indian Mus., vol. 29, pt. 1, p. 21, fig. 3, April 1927

(North end of Persian Gulf; Bengal Bay; Ganjam; south of Ganjam; Persian

Gulf; Andamans; Tenasserim; Galle, Ceylon). —Fowler, Mem. Bishop Mus.,

vol. 10, p. 90, 1928 (compiled).

Depth  $2 \frac{3}{5}$  to  $2 \frac{3}{4}$ ; head  $3 \frac{1}{4}$  to  $3 \frac{2}{5}$ , width  $4 \frac{1}{5}$  to  $4 \frac{2}{5}$ . Snout to lower orbit  $3 \frac{3}{4}$  to  $4 \frac{1}{8}$  in head from snout tip; lower orbit  $3 \frac{1}{8}$  to  $3 \frac{3}{5}$ , greater than snout,  $\frac{1}{4}$  to  $\frac{2}{5}$  in advance of upper; maxillary reaches  $\frac{1}{5}$  to  $\frac{1}{4}$  in lower orbit, expansion 3 to  $3 \frac{1}{3}$  in lower orbit, length  $2 \frac{1}{5}$  to  $2 \frac{1}{4}$  in head from snout tip; interorbital as rather elevated bony keel. Gill rakers 0 + 12, lanceolate, equal gill filaments or  $\frac{1}{3}$  of lower orbit.

Scales 42 to 45 in lateral line to caudal base and 4 or 5 more on latter; 12 or 13 above, 12 or 13 below. Caudal base scaly. Scales very caducous, apparently not present on dorsal and anal. Scales with 28 to 30 parallel basal radiating striae; 27 to 29 short slender apical denticles; circuli fine continuous. Scales of left side ctenoid, cycloid on right side. Lateral line with anterior arch  $3 \frac{1}{2}$  to  $4 \frac{1}{2}$  in straight



section to lateral line.

D. 90 to 95, fin height 2 to  $2 \frac{1}{5}$  in total head, anterior 6 rays sometimes greatly prolonged or  $1 \frac{2}{3}$  in combined head and body to caudal base; A. 68 to 71, fin height  $1 \frac{4}{5}$  to  $2 \frac{2}{5}$  in total head length; caudal  $1 \frac{1}{3}$  to  $1 \frac{2}{5}$ , convex behind; least depth of caudal peduncle  $2 \frac{4}{5}$  to 3; pectoral  $1 \frac{1}{3}$  to  $1 \frac{3}{5}$ ; ventral  $1 \frac{4}{5}$  to  $1 \frac{5}{6}$ .

Left side brown, usually paler toward body edges. Row of obscure dark blotches along upper and lower body edges. Dark blotch at hind end of arch of lateral line and often 1 or 2 more less prominent on straight part of lateral line. Orbits dark gray. Vertical fins pale, with gray or brownish specks terminally on rays and often large prominent black spot on dorsal and anal basally and well posterior. Pectoral with brownish spots and conspicuous black subterminal blotch. Right side whitish, vertical fins little specked terminally with 2 blackish posterior spots usually distinct. Both ventrals more or less blackish terminally.

Persian Gulf, India, Ceylon, Andamans, Burma, Malaya, East Indies, China.



1971, 1973. [682, 683] D.5310. China Sea, vicinity of Hong Kong (lat.  $21^{\circ}33'N.$ , long.  $116^{\circ}13'E.$ ). In 100 fathoms, November 4, 1908. Length 65 to 82 mm. 2 examples.

1335. D.5311. China Sea, vicinity of Hong Kong (lat.  $21^{\circ}33'N.$ , long.  $116^{\circ}15'E.$ ). In 88 fathoms. November 4, 1908. Length 68 mm.

2375. D.5131. Island of Panabutan Point, N.  $20^{\circ}E.$ , 0.40 mile. In 27 fathoms. February 6, 1908. Length 37 mm.

4541. D.5593. Mount Putri (sea tangent) Borneo, N.  $52^{\circ}W.$ , 17.2 miles (lat.  $4^{\circ}2'40''N.$ , long.  $118^{\circ}11'20''E.$ ). In 38 fathoms. September 29, 1909. Length 49 mm.

3648. D.5442. San Fernando Point Light, N.  $39^{\circ}E.$ , 8.4 miles (lat.  $16^{\circ}30'36''N.$ , long.  $120^{\circ}11'06''E.$ ), west coast of Luzon. In 45 fathoms. May 11, 1909. Length 35 to 84 mm. 35 examples.



Arnoglossus tenuis Günther

Arnoglossus tenuis Gunther, Rep. Voy Challenger, vol. 1, pt. 6, p. 55,

1880 (type locality : Hong Kong). —Jordan and Seale, Proc. U. S.

Nat. Mus., vol. 29, p. 528, 1906 (Hong Kong). —Reeves, Journ. Pan

Pac. Res. Inst., vol. 2, No. 3, p. 14, July-Sep. 1927 (Hong Kong).

—Chu, Biol. Bull. St. John's Univ., Shanghai, No. 1, p. 90, Jan.

1931 (reference).



Arnoglossus ui Tanaka

Engyprosopon ui Tanaka, Journ. Fac. Sci. Univ. Tokyo, sect. 4, Zool.,

vol. 3, pt. 1, p. 38, Nov. 4, 1931 (name).



Arnoglossus violaceus Franz

Arnoglossus violaceus Franz, Abhand. Kon. Bayer. Akad. Wiss., vol. 4,

Suppl. Band 1, p. 61, pl. 7, fig. 56, 1919 (type locality : Aburatsubo).

—Jordan, Tanaka, Snyder, Journ. College Sci., vol. 33, p. 315, 1913

(copied).



Arnoglossus wakiyai Schmidt

Arnoglossus wakiyai Schmidt, Comptes Rend. Acad. Sci. U. R. S. S., p. 313,

1931 (type locality : Fusan, Korea).



Arnoglossus waitei Norman

Arnoglossus waitei Norman, Biol. Res. Endeavour, vol. 5, pt. 5, p. 241,

fig. 4, June 15, 1926 (type locality : Great Sandy Strait, Queensland).

—McCulloch, Austral. Mus. Mem., No. 5, pt. 2, p. 277, Sep. 10, 1929

(reference).



Arnoglossus xenandrus (Gilbert)

Engyprosopon xenandrus Gilbert, Bull. U. S. Fish Comm., vol. 23, pt. 2,

p. 687, fig. 270, 1903 (1905) (type locality : off Molokai; Pailolo

Channel; Avu Channel; Laysan; off Maui; Kauai; 30 to 176 fathoms).

Scaeops xenandrus Jordan and Seale, Bull. Bur. Fisher., vol. 25, p. 412,

1905 (1906) (name). —Fowler, Mem. Bishop Mus., vol. 10, p. 92, 1928

(Hawaii).



Arnoglossus xystrias (Hubbs)

Engyprosopon xystrias Hubbs, Proc. U. S. Nat. Mus., vol. 48, p. 457,

pl. 25, fig. 3, 1915 (type locality : Vincennes Strait, Japan, 83

fathoms). —Tanaka, Journ. Fac. Sci. Univ. Tokyo, sect. 4, Zool.,

vol. 3, pt. 1, p. 38, Nov. 4, 1931 (name).



Genus Crossolepis Norman

Crossolepis Norman, Rec. Indian Mus., vol. 29, pt. 1, p. 22, 1927. (Type

Arnoglossus brevirictis Alcock, orthotypic.)

Body sinistral. Eyes close together, separated by narrow ridge, lower eye little advanced. Mouth rather small. Teeth small, pointed, uniserial in both jaws. Palate toothless. Interorbital alike in both sexes. Gill membranes united. Upper angle of gill opening midway between beginning of lateral line and pectoral fin origin. Scales moderate, strongly ciliated on ocular side, cycloid on right or blind side. Scaling of head and body continuous below lateral line. Lateral line only on left or colored side, with strong arch anteriorly. Dorsal begins in advance of eyes, rays simple scaly on ocular side. Left ventral median, base long, right ventral lateral, base shorter.



Crossolepis brevirectis (Alcock)

Arnoglossus brevirectis Alcock, Ann. Mag. Nat. Hist., ser. 6, vol. 6,  
 p. 433, 1890 (type locality : Ganjam Coast, Bengal Bay, 30 fathoms);  
 Journ. Asiatic Soc. Bengal, vol. 65, pt. 2, p. 327, 1896 (        );  
 Illustrat. Zool. Investigator, pt. 1, pl. 22, fig. 4, 1898 (type).  
~~—~~ Weber, Siboga Exped., vol. 57, p. 432, 1913 (Manado, Celebes, 55  
 meters).

Crossolepis brevirectis Norman, Rec. Indian Mus., vol. 29, pt. 1, p.  
 23, fig. 4, April 1927 (Ganjam; Madras; Travancore; 20 to 75  
 fathoms).

Bothus (Arnoglossus) brevirectis Weber and Beaufort, Fishes Indo Austral.  
 Archip., vol. 5, p. 129, 1929 (Weber's material).



Depth  $2 \frac{1}{5}$  to  $2 \frac{1}{4}$ ; head 4, width  $3 \frac{7}{8}$  to  $4 \frac{1}{2}$ . Snout to lower orbit 4 to  $4 \frac{1}{2}$  in head from snout tip; lower orbit  $3 \frac{1}{2}$  to 4, little greater than snout,  $\frac{1}{8}$  to  $\frac{1}{4}$  in advance of upper orbit; maxillary reaches  $\frac{1}{8}$  to  $\frac{1}{5}$  in lower orbit, expansion  $2 \frac{3}{4}$  to 3, length 3 to  $3 \frac{1}{4}$  in head from snout tip; interorbital narrow, barely  $\frac{1}{3}$  of pupil. Gill rakers 3 +8, lanceolate,  $\frac{3}{4}$  of gill filaments which  $1 \frac{4}{5}$  in lower orbit.

Scales 46 or 47 in lateral line to caudal base and 5 more on latter; 12 above, 11 below. Vertical fins with small scales basally. Muzzle, including maxillary, naked. Scales with 35 or 36 close set basal radiating striae; row of short uniform apical denticles 28 to 30; circuli fine continuous. Scales all very caducous, cycloid on right side. Lateral line only on left side, arch  $4 \frac{2}{5}$  to  $4 \frac{4}{5}$  in straight section to caudal base.

D. 80 to 82, fin height  $1 \frac{1}{2}$  to  $1 \frac{3}{5}$  in total head length; A. 64 or 65, fin height  $1 \frac{3}{5}$  to  $1 \frac{4}{5}$ , preceded by short spine; caudal  $1 \frac{1}{10}$  to  $1 \frac{1}{8}$ , convex behind; least depth of caudal peduncle 2 to  $2 \frac{2}{5}$ ; pectoral  $1 \frac{1}{3}$  to 2; ventral  $1 \frac{7}{8}$  to 2.

Left side largely uniform russet, where scales have fallen edges of pockets narrowly and inconspicuously blackish. Orbits neutral gray. Fins all pale brownish, vertical ones slightly darker terminally. Pectorals pale. Right side whitish.

South eastern India, East Indies.

43607, 43606, 4309. D.5182. Antonia Island (S.), N.,  $43^{\circ}$ W., 3.70 miles (lat.  $11^{\circ}30'40''$ N., long.  $123^{\circ}23'20''$ E.), off eastern Panay. In 24 fathoms. March 27, 1908. Length 61 to 76 mm.

4268. D.5209. Taratara Island (N.), S.  $53^{\circ}$ W., 1.80 miles (lat.



11°45'25"N., long. 124°48'05"E.), off western Samar. In 20 to 26 fathoms.

April 14, 1908. Length 68 mm.



Genus Lophonectes Günther

Lophonectes Günther, Rep. Voy. Challenger, vol. 1, pt. 6, p. 28, 1880.

(Type Lophonectes gallus Günther, monotypic.)

Lophorhombus Macleay, Proc. Linn. Soc. New South Wales, vol. 7, pt. 1,

p. 14, May 23, 1883. (Type Lophorhombus cristatus Macleay, monotypic.)



Lophonectes gallus Gunther

Lophonectes gallus Günther, Rep. Voy. Challenger, vol. 1, pt. 6, p. 28,

pl. 15, fig. B, 1880 (type locality : off Port Jackson, 30 fathoms).

—Ogilby, Mem. Queensland Mus., vol. 1, p. 49, 1912 (Moreton Bay).

—McCulloch, Austral. Mus. Mem., vol. 5, pt. 2, p. 278, Sep. 10, 1929

(compiled).

Lophorhombus cristatus Macleay, Proc. Linn. Soc. New South Wales, vol. 7,

pt. 1, p. 14, May 23, 1883 (type locality : Port Jackson).



Genus Bothus Rafinesque

Bothus Rafinesque, Car. Nuov. Anim. Sicilia, p. 23, 1810. (Type Bothus

rumola Rafinesque = Pleuronectes rhombus Linnaeus, designated by Jor-

dan and Gilbert, Proc. U. S. Nat. Mus., vol. 5, 1882 (1883). p. 576.)

Solea Catesby, Hist. Nat. Carolina, ed. 2, p. 27, 1771. (Species non-

binomial. Type Pleuronectes lunatus Linnaeus, designated by Jordan

and Evermann, Genera of Fishes, pt. 1, p. 31, 1917.)

Platophrys Swainson, Nat. Hist. Animals, vol. 2, p. 302, 1839. (Type

Rhombus ocellatus Agassiz, monotypic.)

Peloria Cocco, Lettera del Prof. Anastasio Cocco al Signor Augusto Krohn

(Intorno ad a nuovi Pesci del mare di Messina), p. 21, 1844. (Type

Peloria podas Cocco, monotypic.) (Pelorus Montfort 1808 not involved.)

Coccolus Bonaparte, in Cocco, Lettera del Prof. Anastasio Cocco al Signor

Augusto Krohn (Intorno ad a nuovi Pesci del mare di Messina), p. 21,

1844. (Type Coccolus annectens Cocco.)

Rhomboidichthys Bleeker, Act. Soc. Sci. Ind. Néerl. (Manado Macass.), vol.

1, p. 57, 1856. (Type Rhombus myriaster Schlegel, monotypic.)



Trichopsetta Gill, Proc. U. S. Nat. Mus., vol. , p. 501, 1888.

(Type Citharichthys ventralis Goode and Bean, orthotypic.)

Psettylis Alcock, Ann. Mag. Nat. Hist., ser. 6, vol. 6, p. 436, 1890.

(Type

Perissias Jordan and Evermann, Bull. U. S. Nat. Mus., No. 47, pt. 3, p.

2667, 1898. (Type Platophrys taeniopterus Gilbert, monotypic.)

Pseudocitharichthys Weber, Siboga Exped., vol. 57, p. 413, 1913. (Type

Citharichthys aureus Day, monotypic.)

Grammatobothus Norman, Biol. Res. Endeavour, vol. 5, pt. 5, p. 253, June

15, 1926. (Type Platophrys polyophthalmus Bleeker.)



Bothus assimilis (Günther)

Rhomboidichthys assimilis Günther, Cat. Fishes Brit. Mus., vol. 4, p. 437,  
1862 (type locality : China).

Platophrys (Platophrys) assimilis Bleeker, Nederl. Tijds. Dierk., vol. 4,  
p. 130, 1873 (1874) (reference).

Platophrys assimilis Chu, Biol. Bull. St. John's Univ., Shanghai, No. 1,  
p. 89, Jan. 1931 (compiled).



Bothus chlorospilus (Gilbert)

Platophrys chlorospilus Gilbert, Bull. U. S. Fish Comm., vol. 22, pt. 2,  
p. 684, fig. 267, 1903 (1905) (type locality : north coast Maui, 78 to  
85 fathoms). — Fowler, Mem. Bishop Mus., vol. 10, p. 91, 1928  
(Hawaiian Islands).



Bothus inermis (Gilbert)

Platophrys inermis Gilbert, Bull. U. S. Fish Comm., vol. 23, pt. 2, p. 685,  
fig. 268, 1903 (1905) (type locality : Pailolo Channel, between Molokai  
and Maui; Laysan; north of Maui; 99 to 173 fathoms).

Platophrys chlorospilus (not Gilbert) Fowler, Mem. Bishop Mus., vol. 10,  
p. 91, 1928 (Gilbert's material).



Bothus kiensis (Tanaka)

Platophrys kiensis Tanaka,

Journ. Fac. Sci. Univ. Tokyo, sect. 4, Zool., vol. 3, pt. 1, p. 38,

Nov. 4, 1931 (name).



Bothus krempfi (Chabanaud)

Grammatobothus krempfi Chabanaud,

—Chevey, Inst. Océan. Indo Chine, 19<sup>e</sup> Note, p. 27, Aug. 25, 1932

(Poulo-Condore).



Bothus mancus (Broussonet)

Pleuronectes mancus Broussonet, Ichth. Dec., no pagination, pls. 3-4,

1782 (type locality : Ulietea, near Anemoka, Tahiti). — Bonnaterre,

Tabl. Ichth., p. 78, pl. 41, fig. 161, 1788 (Pacific Ocean). —

Gmelin, Syst. Nat. Linn., pt. 1, p. 1238, 1789 (Pacific Ocean; not

Brazil). — Walbaum, Artedi Pisc., vol. 3, p. 117, 1792 (copied).

Pleuronectes lunatus var. mancus Schneider, Syst. Ichth. Bloch, p. 154,

1801 (Pacific Ocean).

Platophrys mancus Smith and Swain, Proc. U. S. Nat. Mus., vol. 5, p.

142, 1882 (Johnston Island). — Jordan and Snyder, Proc. U. S. Nat. Mus.,

vol. 17, p. 946, 1904 (Honolulu). — Gilbert, Bull. U. S. Fish Comm.,

vol. 23, pt. 2, p. 684, 1903 (1905) (Honolulu; Pailolo Channel; between

Maui and Lanai; Laysan; 34 to 140 fathoms). — Seale, Occas. Pap. Bishop

Mus., vol. 4, No. 1, p. 86, 1906 (Rarotonga; Tubuai). — Jordan and

Seale, Bull. Bur. Fisher., vol. 25, p. 412, 1905 (1906) (Apia; Pago Pago).

— Kendall and Goldsborough, Mem. Mus. Comp. Zool., vol. 26, p. 33, 1911

(Arhno; Fakarava; Makemo). — Weber, Siboga Exped., vol. 57, p. 427, 1913

(Binongka). — Jordan and Jordan, Mem. Carnegie Mus., vol. 10, No. 1, p.



24, Dec. 1922 (Hawaii). — Fowler and Ball, Bull. Bishop Mus., No. 26,

p. 9, 1925 (Johnston and Wake Islands). — Fowler, Bull. Bishop Mus.,

No. 38, p. 21, 1927 (Tongareva); Mem. Bishop Mus., vol. 10, p. 90, pl.

4B, 1928 (Hawaii, Tuamotus; Makemo; Arhno; Johnston Island; Honolulu;

Palmyra; Wake; Marcus; Raiatea; Rarotonga; Makatea; Agana, Guam; Apiang).

— Chevey, Inst. Océan. Indo Chine, 19<sup>e</sup> Note, p. 27, Aug. 25, 1932 (Annam).

Rhomboidichthys mancus Günther, Journ. Mus. Godeffroy, vol. 8, pt. 16, p.

342, 1909 (Ulietea).

Bothus mancus Norman, Rec. Indian Mus., vol. 29, pt. 1, p. 34, April 1927

(Maldives).

Bothus (Platophrys) mancus Weber and Beaufort, Fishes Indo Austral. Archip.

vol. 5, p. 122, 1929 (Weber's materials).

?Pleuronectes spinosus Schneider, Syst. Ichth. Bloch, p. 161, 1801 (type

locality : Pacific Ocean near Nanoeka Island, New Caledonia).

Rhombus macropterus Quoy and Gaimard, Voy. Uranie, Zool., p. 236, pl. 50,

1824 (type locality : Iles des Papous; Rawak).

Pleuronectes pictus Forster, in Lichtenstein, Descript. Animal., p. 285,

1844 (type locality : Nanoeka Island).



Rhombus pavo Bleeker, Naturk. Tijds. Nederl. Indië, vol. 7, p. 177, 1855

(type locality : Cocos-Keeling Islands).

Rhomboidichthys pavo Günther, Cat. Fishes Brit. Mus., vol. 4, p. 435,

1862 (China; Aneiteum). — Peters, Monatsb. Akad. Wiss. Berlin, 1876,

p. 844 (Bougainville Islands). — Günther, Rep. Voy. Challenger, vol.

1, pt. 6, p. 53, 1880 (Malanipa, near Zamboanga). — Tirant, Serv.

Océan. Pêch. Indo Chine, 6<sup>e</sup> Note, p. 172, 1929 (Phu Yen).

Platophrys (Platophrys) pavo Bleeker, Atlas Ichth. Ind. Néerl., vol. 6,

p. 11, pl. (4) 235, fig. 2, 1866-72 (Nova Selma, Cocos-Keeling);

Nederl. Tijds. Dierk., vol. 4, p. 130, 1873 (1874) (China).

Platophrys pavo Seale, Occas. Pap. Bishop Mus., vol. 1, No. 3, p. 128,

1900 (Guam). — Steindachner, Denks. Akad. Wiss. Wien, Math.-nat. Kl.,

vol. 70, p. 510, 1901 (Honolulu); vol 71, pt. 5, p. 20, 1902 (Honolulu).

— Regan, Trans. Linn. Soc. London, ser. 2, vol. 12, pt. 3, Zool., p. 232,

May 1908 (Peros, Chagos Archipelago).

Pleuronectes rhombus (not Linnaeus) Jouan, Mem. Soc. Sci. Cherbourg, vol.

8, p. 256, 1861 (Uitoe, New Caledonia).



Bothus myriaster (Schlegel)

Rhombus myriaster Schlegel, Fauna Japonica, Poiss., pts. 10-14, p. 131,

pl. 92, fig. 2, 1846 (type locality : Japan).

Rhomboidichthys myriaster Bleeker, Act. Soc. Sci. Ind, Néerl. (Manado

Macas.), vol. 1, p. 57, 1856 (Manado). —Günther, Cat. Fishes Brit.

Mus., vol. 4, p. 436, 1864 (China). —Ishikawa and Matsuura, Prelim.

Cat. Fishes Mus. Tokyo, p. 25, 1897 (reference).

Platophrys (Platophrys) myriaster Bleeker, Atlas Ichth. Ind. Néerl.,

vol. 6, p. 10, pl. (9) 240, fig. 4, pl. (11) 242, fig. 1, 1866-72

(Celebes; Amboyna); Nederl. Tijds. Dierk., vol. 4, p. 130, 1873 (1874)

(reference). —Weber and Beaufort, Fishes Indo Austral. Archip., vol.

5, p. 120, 1929 (Sumatra, Java, western Ceram).

Platophrys myriaster Jordan and Snyder, Annot. Zool. Japon., vol. 3, p.

122, 1901 (reference). —Steindachner, Denks. Akad. Wiss. Wien, Meth.-

nat. Kl., vol. 71, p. 152, 1902 (Gischin, Arabia). —Jordan and Evermann,

Proc. U. S. Nat. Mus., vol. 25, p. 365, 1902 (Formosa). —Jordan and

Starks, Proc. U. S. Nat. Mus., vol. 31, p. 167, 1906 (Keerun, Formosa).

—Snyder, Proc. U. S. Nat. Mus., vol. 42, p. 517, 1912 (Okinawa). —

Weber, Siboga Exped., vol. 57, p. 428, 1913 (Kawa, west Ceram).



- Jordan, Tanaka, Snyder, Journ. College Sci. Tokyo, vol. 33, p. 312,  
1913 (reference). —Hubbs, Proc. U. S. Nat. Mus., vol. 48, p. 457,  
1915 (Vincennes Strait, Japan). —Izuka and Matsuura, Cat. Zoo. Spec.  
Mus. Tokyo, Vertebr., p. 115, 1920 (Kagoshima). —Reeves, Journ. Pan  
Pac. Res. Inst., vol. 2, No. 3, July-Sep. 1927, p. 14 (south China).  
—Fowler, Proc. Acad. Nat. Sci. Philadelphia, 1929, p. 615 (Hong Kong).  
—Chu, Biol. Bull. St. John's Univ., Shenghai, No. 1, p. 90, Jan. 1931  
(compiled). —Tanaka, Journ. Fac. Sci. Un. Tokyo, sect. 4, Zool., vol.  
3, pt. 1, p. 38, Nov. 4, 1931 (reference).

Bothus (Platophrys) myriaster Weber and Beaufort, Fishes Indo Austral.

Archip., vol. 5, p. 120, 1929 (Sumatra; East Java; Weber's material).

Bothus myriaster Chevey, Inst. Océan. Indo Chine, 19<sup>e</sup> Note, p. 27, Aug. 25,

1932 (Annam).

Bothus bleekeri Steindachner, Verh. zool.-bot. Gesell. Wien, vol. 2, p.

<sup>178</sup>  
~~278~~, 1861 (type locality : Amboina).



Platophrys circularis Regan, Trans. Linn. Soc. London, vol. 13, pt. 3,

Zool., p. 233, pl. 26, fig. 3, 1908 (type locality : Amirante, Sey-

chelles Group, 22 to 85 fathoms). —Franz, Abhandl. Kon. Bayer Akad.

Wiss., vol. 4, Suppl. Band 1, p. 62, pl. 7, fig. 66, 1910 (Fukuura).

—Jordan, Tanaka, Snyder, Journ. College Sci., Tokyo, vol. 33, p. 312,

(name).



Bothus ovalis (Regan)

Platophrys ovalis Regan, Trans. Linn. Soc. London, ser. 2, vol. 12, Zool.,  
pt. 3, p. 232, pl. 27, fig. 6, 1908 (type locality : Amirante, Seychel-  
les Group).

Bothus ovalis Norman, Rec. Indian Mus., vol. 29, pt. 1, p. 32, fig. 7,  
April 1927 (Ganjam; Arakan).

Psettylis ocellata (not Rhombus ocellatus Agassiz) Alcock, Ann. Mag. Nat.  
Hist., ser. 6, vol. 6, p. 437, fig. 3, 1890 (type locality :

Journ. Asiatic Soc. Bengal, vol. 65, pt. 2, p. 328, 1893 ( ).

—Johnstone, Ceylon Pearl Fisher., Rep. 15, p. 207, pl. 1, fig. 3, pl. 2,  
1904.



Bothus pantherinus (Rüppell)

Rhombus pantherinus Rüppell, Atlas Reis nordl. Afrika, Fische, p. 121,

pl. 3, fig. 1, 1828 (type locality : Mohila, Red Sea).

Psetta pantherina Rüppell, Verzeichn. Samml. Senckenberg. Mus., p. 19,

1852.

Pseudorhombus pantherinus Bleeker, Versl. Akad. Wet. Amsterdam, vol. 14,

p. 103, 1862.

Rhomboidichthys pantherinus Günther, Cat. Fishes Brit. Mus., vol. 4,

p. 436, 1862 (Mauritius; Madagascar; Amboyna; Fiji); Fishes of Zanzi-

bar, p. 112, 1866 (Aden; Zanzibar). —Schmeltz, Cat. Mus. Godeffroy,

No. 4, p. 24, 1869 (Samoa). —Klunzinger, Verh. zool. bot. Gesell.

Wien, vol. 21, p. 571, 1871 (Red Sea). —Peters, Montasb. Akad. Wiss.

Berlin, p. 844, 1876 (1877) (Bougainville Island). —Streets, Bull.

U. S. Nat. Mus., No. 7, p. 57, 1877 (Honolulu), p. 59 (Fanning Islands).

—Günther, Rep. Voy. Challenger, vol. 1, pt. 6, p. 61, 1880 (Honolulu).

—Meyer, Anal. Soc. Espan. Hist. Nat. Madrid, vol. 14, p. 40, 1885 (Man-

ado, Celebes; Kordo, Mysore). —Vaillant, Bull. Soc. Philom. Paris,

ser. 7, vol. 11, p. 54, 1886-87 (Tahiti). —Pellegrin, Bull. Mus. Hist.



Nat. Paris, vol. 4, p. 228, 1898 (Rota, Mariannes). —Waite, Austral.  
Mus. Records, No. 5, p. 3, 1903 (Nauru, Pleasant Island). —Regan,  
Journ. Bombay Nat. Hist. Soc., vol. 16, pt. 2, p. 332, 1905 (Muscat).  
—Günther, Journ. Mus. Godeffroy, vol. 8, pt. 16, p. 343, 1909 (South  
Sea). —Pellegrin, Annu. Mus. Zool. Reg. Univ. Napoli, vol. 3, No.  
27, p. 9, 1912.

Platophrys (Platophrys) pantherinus Bleeker, Atlas Ichth. Ind. Néerl., vol.  
6, p. 11, pl. (2) 233, fig. 3, 1866-72 (Cocos; Bali; Sumatra; Batu;  
Celebes; Flores; Batjan; Morotai; Buru; Ceram; Amboina; Saparua; Banda;  
Aru).

Platophrys pantherinus Day, Fishes of India, pt. 3, p. 425, pl. 92, figs.  
3-4, 1877 (Port Blair). —Ogilby, Proc. Linn. Soc. New South Wales, vol.  
22, p. 770, 1897 (New Caledonia). —Waite, Prelim. Rep. Thetis, p. 61,  
1898 (Lord Howe Island); Austral. Mus. Mem., No. 3, p. 546, 1899 (Funafuti).  
—Steindachner, Denks. Akad. Wiss. Wien, Math.-nat. Kl., vol. 70, p. 511,  
1901 (Honolulu). —Seale, Occas. Pap. Bishop Mus., No. 5, p. 17, 1902  
(Honolulu). —Steindachner, Denks. Akad. Wiss. Wien, Math.-nat. Kl.,  
vol. 71, p. 153, 1902 (Kalansiye, Sokótra). —Jenkins, Bull. U. S. Fish



- Comm., vol. 22, p. 510, 1902 (1903) (Honolulu). —Waite, Rec. Austral. Mus., vol. 5, pt. 3, p. 226, 1904 (copied). —Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, p. 512, 1903 (1905) (Honolulu; Hilo). —Jordan and Seale, Bull. Bur. Fisher., vol. 25, p. 412, 1905 (1906)(Apia). —Evermann and Seale, Bull. Bur. Fisher., vol. 26, p. 105, 1906 (1907) (Bacon). —Jordan and Richardson, Bull. Bur. Fisher., vol. 28, p. 280, 1907 (1908) (Aparri, north Luzon). —Regan, Trans. Linn. Soc. London, ser. 2, vol. 12, Zool., pt. 3, p. 232, 1908 (Suva-diva and south Milandu, Maldives; Amirante, Seychelles). —Kendall and Goldsborough, Mem. Mus. Comp. Zool., vol. 26, p. 332, 1911 (Kambora, Fiji, Fakarava, Makemo, Guam, Moen, Namuka). —Beaufort, Bijdr. Dierk. Amsterdam, vol. 19, p. 134, 1913 (Saonek, Waigiu). —Weber, Siboga Exped., vol. 57, p. 427, 1913 (Lombok, Menado, Beo, Laiwui, Saleyer, Binongka). —Gilchrist and Thompson, Ann. Durban Mus., vol. 1, pt. 4, p. 400, May 21, 1917 (compiled). —Fowler, Copeia, No. 112, p. 84, Nov. 20, 1922 (Hawaii). —Jordan and Jordan, Mem. Carnegie Mus., vol. 10, No. 1, p. 24, Dec. 1922 (Hawaii). —McCulloch, Mem. Queensland Mus., vol. 7, pt. 4, p. 244, 1922 (Murray Island, Torres Strait, Cape Flattery, Queensland; Lord Howe Island; Funafuti; Pleasant Island; India). —







Bothus (Platophrys) pantherinus Weber and Beaufort, Fishes Indo Austral. Archip., vol. 5, p. 123, 1929 (Pulu Weh; Sumatra; Nias; Java; Butan; Solor; Karakelang; Sula Islands; Obi major; Ambon; Kei; Aru; Waigiu; also Weber's materials).

Rhombus parvimanus Bennett, Proc. Zool. Soc. London, vol. 1, p. 168, 1830 (type locality : Mauritius).

Passer marchionessarum Valenciennes, Voy. Venus, Zool., p. 344, pl. 9, 1850 (type locality : Marquesas Islands).

Rhomboidichthys marchionessarum Günther, Cat. Fishes Brit. Mus., vol. 4, p. 435, 1862 (compiled).

Rhombus sumatranus Bleeker, Naturk. Tijdschr. Nederl. Indië, vol. 1, p. 409, 1850 (type locality : West Sumatra).

Platophrys lunulatus (not Bonnaterre) Jouan, Mém. Soc. Nat. Cherbourg, vol. 8, p. 256, 1861 (Port de France and Kanala, New Caledonia; likely male).

Citharichthys aureus Day, Fishes of India, pt. 3, p. 422, pl. 90, fig. 3, 1877 (type locality : Madras; post larval); Fauna Brit. India, vol. 2, p. 440, fig. 156, 1889.



Platophrys mancus (not Broussonet) Jordan and Snyder, Proc. U. S. Nat.

Mus., vol. 27, p. 946, 1904 (Honolulu). — Seale, Occas. Pap. Bishop

Mus., vol. 4, No. 1, p. 86, 1906 (Tahiti, Rarotonga, Makatea, Shortland).

Depth  $1 \frac{3}{4}$  to 2; head  $3 \frac{1}{3}$  to 4, width 3 to  $3 \frac{3}{4}$ . Snout to lower orbit  $3 \frac{1}{4}$  to  $4 \frac{1}{4}$  in head from snout tip; lower orbit 4 to  $4 \frac{3}{4}$ , 1 in snout, 1 in interorbital; maxillary reaches to or  $\frac{1}{5}$  in lower orbit, expansion 2 to  $2 \frac{1}{5}$  in lower orbit, length  $2 \frac{4}{5}$  to  $3 \frac{1}{10}$  in head from snout tip; bony interorbital width  $4 \frac{2}{5}$  to  $4 \frac{2}{3}$  in head, concave. Gill rakers 0 to 1 + 7 or 8, tubercles,  $\frac{1}{5}$  gill filaments, which  $1 \frac{2}{5}$  in lower orbit.

Scales 60 to 70 in lateral line to caudal base and 4 to 6 more on latter; 27 to 37 above, 30 to 37 below. Left scales with 90 to 95 basal striae; 28 to 30 apical points; right scales cycloid. Arch of lateral line 4 to 6 in rest of its extent.

D. 88 to 94, fin height  $2 \frac{1}{4}$  to  $2 \frac{1}{2}$  in total head length; A. 62 to 72, fin height  $2 \frac{1}{4}$  to  $2 \frac{1}{2}$ ; caudal  $1 \frac{1}{5}$  to  $1 \frac{1}{4}$ , convex behind; least depth of caudal peduncle  $2 \frac{7}{8}$  to  $2 \frac{2}{3}$ ; pectoral 1 to  $1 \frac{3}{5}$ , with filaments sometimes reaching nearly to middle of caudal; ventral  $1 \frac{2}{3}$  to  $1 \frac{3}{4}$ .

Color very variable, ground color from pale gray to brown. Left side neutral gray, mottled darker and with many small dark rings. Often crowded white to gray spots variably and irregularly over whole surface. Along lateral line 2 imperfect blackish blotches, first at arch and second midway in straight section. Vertical fins with small dusky spots or specks on rays, also larger scattered blackish spots at intervals. Besides these many whitish variable spots in some examples. Right side whitish, and whitish spots often distinct on vertical fins, which otherwise grayish terminally.



Bothus pennatus (Ogilby)

Platophrys pennata Ogilby, Mem. Queensland Mus., vol. 2, p. 83, Dec. 10,  
1913 (type locality : Queensland).

Grammatobothus pennatus McCulloch, Austral. Mus. Mem., No. 5, pt. 2, p.  
277, Sep. 10, 1929 (reference).



Bothus polylepis (Alcock)

Arnoglossus polylepis Alcock, Journ. Asiatic Soc. Bengal, vol. 58, pt. 2,  
p. 290, pl. 16, fig. 1, 1889 (type locality : off east coast of Ceylon,  
34 fathoms); Illustr. Zool. Investigator, pt. 1, p. 3, 1892 (reference).

Rhomboidichthys polylepis Alcock, Ann. Mag. Nat. Hist., ser. 6, vol. 6,  
p. 434, 1890 ( ); Journ. Asiatic Soc. Bengal, vol.  
65, pt. 2, p. 328 ( ); Illustr. Zool. Investigator,  
pt. 5, pl. 24, figs. 4-5, 1898.

Bothus polylepis Norman, Rec. Indian Mus., vol. 29, pt. 1, p. 31, April  
1927 (off south Ceylon; south east Ceylon; 32 to 34 fathoms).



Bothus polyophthalmus (Bleeker)

Platophrys (Platophrys) polyophthalmus Bleeker, Nederl. Tijds. Dierk.,

vol. 3, p. 46, 1866 (type locality : Sumatra); Atlas Ichth. Ind.

Néerl., vol. 6, p. 12, pl. (3) 234, fig. 3 (types).

Platophrys polyophthalmus McCulloch, Mem. Queensland Mus., vol. 7, pt. 4,

p. 244, 1922 (between Cairns and Rockhampton).

Grammatobothus polyophthalmus Norman, Biol. Res. Endeavour, vol. 5, p.

253, 1926 ( ); Rec. Indian Mus., vol.

29, pt. 1, p. 35, fig. 8, April 1927 (off south Ceylon; Cape Negrais,

Burma, 32 to 49 fathoms). — McCulloch, Austral. Mus. Mem., vol. 5, pt.

2, p. 276, Sep. 10, 1929 (compiled).

Bothus (Platophrys) polyophthalmus Weber and Beaufort, Fishes Indo. Austral.

Archip., vol. 5, p. 119, 1929 (Sumatra, Java Sea, Malacca Strait).

Rhomboidichthys angustifrons Günther, Rep. Voy Challenger, vol. 1, pt. 6,

p. 46, pl. 21, fig. B, 1880 (type locality : Arafura Sea, 30 fathoms).

— Alcock, Ann. Mag. Nat. Hist., ser. 6, vol. 6, p. 435, 1890 (

); Journ. Asiatic Soc. Bengal, vol. 65, pt. 2, p. 328, 1896.



Platophrys angustifrons Fowler, Mem. Bishop Mus., vol. 10, p. 91, 1928

(compiled).

Psettylis ocellata Jenkins, Mem. Indian Mus., vol. 3, p. 27, 1910.



Bothus thompsoni (Fowler)

Platophrys thompsoni Fowler, Occas. Pap. Bishop Mus., vol. 8, No. 7, p.

388, 1923 (type locality : Honolulu); Mem. Bishop Mus., vol. 10, p.

91, pl. 4C, 1928 (type).



Genus Crossorhombus Regan

Crossorhombus Regan, Ann. Durban Mus., vol. 2, pt. 5, p. 211, 1920 (Type

Platophrys dimorphus Günther, orthotypic.)

Eyes on left side. Mouth small. Teeth small, pointed, uniserial in jaws. Palate toothless. Interorbital region concave. Gill membranes united. Upper angle of gill opening short distance above pectoral fin. Scaling of head and body continuous below lateral line. Scales large, strongly ciliated on left side, weakly ciliated or cycloid on right side. Lateral line developed on both sides, with a strong curve anteriorly. Dorsal fin originating in advance of eye. Left ventral median, with long base; right lateral, base shorter.



Crossorhombus azureus (Alcock)

- Rhomboidichthys azureus Alcock, Journ. Asiatic Soc. Bengal, vol. 58, pt. 1, No. 3, p. 283, pl. 16, fig. 3, 1889 (type locality : eight to 20 miles south of Puri); Ann Man. Nat. Hist., ser. 6, vol. 6, p. 435, 1890 ( ); Journ. Asiatic Soc. Bengal, vol. 65, pt. 2, p. 328, 1896 ( ); Illustrat. Zool. Investigator, pt. 5, pl. 24, fig. 3, 1898. —Johnstone, Ceylon Pearl Fisher. Rep. 15, p. 210, 1904. —Jenkins, Mem. Ind. Mus., vol. 3, p. 27, 1910.
- Crossorhombus azureus Norman, Rec. Indian Mus., vol. 29, pt. 1, p. 30, 1927 (off south Ceylon; west of Colombo; Ganjam; Orissa; Arakan; Nicobars; Galle, Ceylon; 7 to 33 fathoms).







Platophrys grandisquama (not Schlegel) Gilchrist, Marine Investig.

South Africa, vol. 4, p. 161, 1906.

Engyprosopon natalensis Regan, Ann. Durban Mus., vol. 2, p. 211, 1920

(type locality : Natal, off mouth of Amatikulu River, 26 or 27

fathoms).

Depth  $2 \frac{1}{8}$ , head  $3 \frac{2}{3}$ , width  $3 \frac{1}{3}$ . Snout tip to lower orbit  $4 \frac{1}{2}$  in head from snout tip; lower orbit  $3 \frac{1}{4}$ , greatly exceeds snout,  $\frac{1}{2}$  in advance of upper orbit; maxillary  $\frac{1}{5}$  in lower orbit, expansion  $3 \frac{3}{4}$  in lower orbit, length  $2 \frac{4}{5}$  in head from snout tip; interorbital  $5 \frac{1}{2}$ , depressed, deeply concave,  $1 \frac{4}{5}$  in lower orbit. Gill rakers 0 + 6, lanceolate, robust,  $1 \frac{1}{5}$  in gill filaments, which  $2 \frac{2}{5}$  in lower orbit.

Scales 60 in lateral line to caudal base and 4 more on latter; 19 above, 23 below. Caudal base scaly. Very fine scales, as row along fin ray from base, on median dorsal and anal rays. Left scales ciliate ctenoid, right ones cycloid. Scales with 40 close set radiating basal striae; 35 to 37 long, slender, subequal, curved apical denticles; circuli fine, continuous. Lateral line on left or colored side distinct, on right side simply as pores; arch straightened or depressed above, 4 in straight section to caudal base.

D. 95, fin height  $3 \frac{1}{6}$  in total head; A. 78, fin height  $2 \frac{1}{5}$ ; caudal  $1 \frac{2}{5}$ , convex behind; least depth of caudal peduncle 3; pectoral  $1 \frac{3}{5}$ ; ventral  $1 \frac{7}{8}$ .

Dark russett brown on left side. Four dark or blackish brown ill defined blotches along lateral line and other small dark spots all along body edges submarginally. Fins brownish. Orbits neutral gray.



Right side whitish, fin rays all more or less grayish.

Natal, Zululand, Portuguese East Africa, India, Ceylon,  
Philippines.

10055. D.5277. Melavatuan Island (N.), S.56°E., 8 miles  
(lat. 13°56'55"N., long. 120°13'45"E.), southern Luzon. In 80  
fathoms. July 17, 1908. Length 108 mm.



Genus Chascanopsetta Alcock

Chascanopsetta Alcock, Journ. Asiatic Soc. Bengal, vol. 63, pt. 2, p. 14,

1894. (Type Chascanopsetta lugubris Alcock, monotypic.)

Pelecanichthys Gilbert and Cramer, Proc. U. S. Nat. Mus., vol. 19, p. 432,

1897. (Type Pelecanichthys crumenalis Gilbert and Cramer, monotypic.)

Trachypterophrys Franz, Abhandl. Kon. Bayer. Akad. Wiss., vol. 4, Suppl.

Band 1, p. 60, 1910. (Type Trachypterophrys raptator Franz, monotypic.)

Body elongate, slender, excessively compressed, tapers gradually to caudal. Head large, oblique. Snout short, pointed. Eyes elliptical, upper advanced. Maxillary, premaxillary and palatopterygoid 3 very slender bony rods, parallel and closely juxtaposed greater part of length. Mandible extended forward far beyond snout tip, rami very slender and flexible, rotate inward so teeth of 2 rami meet and interlock in closed mouth. Mandibular membranes voluminous, form gular pouch. Angular bone forms slender extension beyond mandibular articulation and hind edge of opercle. Teeth minute, uniform. Preopercle edge free. No gill rakers. Scales exceedingly minute. Lateral line axial, conspicuous, continuous, with low, short anterior arch. Dorsal and anal long, former beginning on snout. Caudal lanceolate. Caudal peduncle short. Paired fins small.



Chascanopsetta crumenalis (Gilbert and Cramer)

Pelecanichthys crumenalis Gilbert and Cramer, Proc. U. S. Nat. Mus.,

vol. 19, p. 433, pl. 47, 1897 (type locality : Hawaiian Islands,

295 to 298 fathoms). —Gilbert, Bull. U. S. Fish Comm., vol. 23, pt.

2, p. 690, 1903 (1905) (Pailolo and Kaiwi Channels; Oahu; Maui; 238

to 344 fathoms). —Jordan and Seale, Bull. Bur. Fisher., vol. 25, p.

413, 1905 (1906) (name). —Fowler, Mem. Bishop Mus., vol. 10, p. 93,

1928 (compiled).



Chascanopsetta lugubris Alcock

Chascanopsetta lugubris Alcock, Journ. Asiatic. Soc. Bengal, vol. 63, pt. 2, p. 14, pl. 6, fig. 4, 1894 (type locality : Bay of Bengal, 145 to 250 fathoms). —Goode and Bean, Oceanic Ichth., p. 535, 1895 (name). —Alcock, Illustrat. Zool. Investigator, pt. , pl. 15, fig. 3, 1895; Journ. Asiatic Soc. Bengal, vol. 65, pt. 2, p. 327, 1896 ( ); Cat. Deep Sea Fishes Indian Mus., p. 125, 1899. —Norman, Records Ind. Mus., vol. 29, pt. 1, p. 35, fig. 9, April 1927 (Bengal Bay; west of Ceylon; 143 to 250 fathoms).

Chascanopsetta gilchristi Von Bonde, Rep. Fisher. Mar. Biol. Surv. South Africa, No. 2, Special Rep. 1, p. 7, pl. 2, fig. 2, 1922 (type locality : off Natal, 275 fathoms).

Chascanopsetta gilchristi Barnard, Ann. South African Mus., vol. 21, pt. 1, p. 390, June 1925 (type; type of Chascanopsetta maculata).

Chascanopsetta maculata Von Bonde, Rep. Fisher. Mar. Biol. Surv. South Africa, No. 2, Special Rep. 1, p. 8 (type locality : <sup>NATAL;</sup> Delagoa Bay; 174 to 225 fathoms).



Depth  $3 \frac{3}{5}$  to  $3 \frac{7}{8}$ ; head 4 to  $4 \frac{3}{4}$ , width  $3 \frac{7}{8}$  to  $4 \frac{1}{5}$ . Snout to lower orbit  $5 \frac{2}{5}$  to 6 in head from snout tip; lower orbit 4, greater than snout, upper orbit  $\frac{1}{5}$  to  $\frac{1}{4}$  in advance of lower; maxillary slender, extends  $\frac{1}{4}$  to  $\frac{1}{3}$  behind lower orbit, length  $1 \frac{1}{3}$  to  $1 \frac{2}{5}$  in head from snout tip; mandible  $1 \frac{1}{8}$  to  $1 \frac{1}{6}$ ; teeth slender, conic, small, in narrow irregular row or series; bony interorbital slender or narrow, width 5 to  $5 \frac{1}{2}$  in lower orbit. Gill rakers obsolete; gill filaments  $2 \frac{1}{4}$  in lower orbit.

Scales 180 to 215 in lateral line to caudal base and 15 to 17 more on latter; 38 to 40 above, 65 to 68 below. Scales very minute, cycloid on both sides of body. Lateral line on both sides, arch long, low, flat topped, left arch  $5 \frac{4}{5}$  to  $6 \frac{1}{2}$  in straight section to caudal base. Scales with 8 to 10 basal radiating rather wide-set striae; circuli coarse, continuous.

D. 118 to 120, fin height  $2 \frac{1}{3}$  to 3 in total head length; A. 79 to 82, fin height  $2 \frac{3}{4}$  to 3; caudal  $1 \frac{1}{4}$  to  $1 \frac{1}{2}$ , ends in median point behind; least depth of caudal peduncle  $4 \frac{2}{5}$  to 5; left pectoral  $1 \frac{7}{8}$  to 2, right pectoral  $2 \frac{4}{5}$  to 3; left ventral 2 to  $2 \frac{1}{5}$ , right ventral 2 to  $2 \frac{2}{5}$ .

Left side uniformly chocolate brown, interradiation rays in rather broad pale area all around body. Orbits dark neutral gray. Fins gray brown, caudal more dusky terminally. Left pectoral and ventral brownish, right pectoral whitish. Entire right side whitish, fins grayish, caudal pale or whitish basally.

South Africa, Ceylon, Bengal Bay. Although Norman does not give a count of either pores in lateral line or scales along its course, in most all other details his description and outline figure agrees.



7937. D.5363. Cape Santiago Light, S.79°W., 4.5 miles (lat. 13°47'20"N., long. 120°43'30"E.), Balayan Bay, Luzon. In 180 fathoms. February 20, 1909. Length 265 mm.

1867, 1869. D.5247. Dumalag Island (S.), S.78°W., 3.8 miles (lat. 7°02'N., long. 125°38'45"E.), Gulf of Davao. In 135 fathoms. May 18, 1908. Length 135 to 155 mm.

2382. D.5292. Escarceo Light, N.36°W., 3.25 miles (lat. 13°28'45"N., long. 121°01'12"E.), China Sea vicinity southern Luzon. In 162 fathoms. July 23, 1908. Length 178 mm.

2169. D.5523. Point Tagolo Light, S.48°W., 6.7 miles (lat. 8°48'44"N., long. 123°27'35"E.), northern Mindanao. August 10, 1909. Length 183 mm.

2465. D.5476. San Bernardino Light, S.37°W., 13.5 miles (lat. 12°56'24"N., long. 124°25'24"E.), east coast of Luzon. In 270 fathoms. June 24, 1909. Length 183 mm.



Chascanopsetta prorigera Gilbert

Chascanopsetta prorigera Gilbert, Bull. Bur. Fisher., vol. 23, pt. 2, p. 689, fig. 271, 1903 (1905) (type locality : off north Maui, 187 to 202 fathoms). —Jordan and Seale, Bull. Bur. Fisher., vol. 25, p. 413, 1905 (1906) (name). —Fowler, Mem. Bishop Mus., vol. 10, p. 92, 1928 (compiled).



Chascanopsetta raptator (Franz)

Trachypterophrys raptator Franz, Abhandl. Kon. Bayer. Akad. Wiss., vol.

4, Suppl. Band. 1, p. 60, pl. 7, fig. 54, 1910 (type locality :

Fukuura). — Jordan, Tanaka, Snyder, Journ. College Sci. Tokyo, vol.

33, p. 315, 1913 (copied).

Chascanopsetta raptator Tanaka, Journ. Fac. Sci. Univ. Tokyo, sect. 4,

Zool., vol. 3, pt. 1, p. 38, Nov. 4, 1931 (reference).



Genus Laeops Günther

Laeops Günther, Rep. Voy. Challenger, vol. 1, pt. 6, p. 29, 1880. (Type,

Laeops parviceps Günther, monotypic.)

Scianectes Alcock, Journ. Asiatic Soc. Bengal, vol. 58, pt. 1, No. 3, p.

284, 1889. (Type, Scianectes lophoptera Alcock, monotypic.)

Lambdopsetta Smith and Pope, Proc. U. S. Nat. Mus., vol. 31, p. 496, 1906.

(Type, Lambdopsetta kitaharae Smith and Pope, monotypic.)

?Laeoptichthys Hubbs, Proc. U. S. Nat. Mus., vol. 48, p. 460, 1915. (Type,

Laeoptichthys fragilis Hubbs, orthotypic.)

Body oblong or pyriform, more or less delicate to transparent. Head short or small. Eyes on left side, close together. Mouth cleft small or moderate, very narrow. Teeth minute, villiform, uniserial or in narrow bands in jaws. Palate toothless, sometimes vomerine teeth present. Gill opening moderately wide, membranes united anteriorly and rather broadly. Gill rakers well spaced or numerous, short, pointed. Lateral line with short arch over gill opening, rest axial and straight. Dorsal begins above front edge of eye. Pectoral small. Left ventral with long base, in same line as anal, right ventral short and both fins distinct from anal.



Laeops guentheri Alcock

Laeops guentheri Alcock, Ann. Mag. Nat. Hist., ser. 6, vol. 6, p. 438,

1890 (type locality : Gulf of Martaban, Burma; off Ganjam; Vizagapatam;  
15 to 30 fathoms); Journ Asiatic Soc. Bengal, vol. 65, pt. 2, p. 328,

1896 ( ); Illustrat. Zool. Investigator, pt. , pl. 22,

fig. 4, 1898. —Norman, Rec. Indian Mus., vol. 29, pt. 1, p. 37, April

1927 (north end Persian Gulf, Vizagapatam, Ganjam, Orissa, Puri, Gulf  
of Martaban).

Scianectes macrophthalmus (not Alcock) Jenkins, Mem. Indian Mus., vol. 3,

p. 27, 1910 (part).



Depth  $2 \frac{3}{5}$  to  $2 \frac{3}{4}$ ; head 5 to  $5 \frac{1}{5}$ , width  $3 \frac{2}{5}$  to  $3 \frac{1}{2}$ . Snout tip to lower orbit  $6 \frac{1}{5}$  to  $6 \frac{1}{2}$  in head from snout tip; lower orbit  $3 \frac{1}{5}$  to  $3 \frac{2}{3}$ , greatly exceeds snout,  $\frac{1}{5}$  to  $\frac{1}{4}$  in advance of upper orbit; maxillary reaches  $\frac{1}{5}$  to  $\frac{1}{4}$  in lower orbit, length  $4 \frac{1}{8}$  to  $4 \frac{1}{2}$  in head from snout tip; interorbital with very narrow groove, width 5 in lower orbit. Gill rakers 2 + 6, lanceolate,  $\frac{1}{4}$  of gill filaments, which  $1 \frac{3}{4}$  in lower orbit.

Scales 83 to 87 in lateral line to caudal base and 5 or 6 more on latter; 19 or 20 above, 18 or 19 below. Snout and muzzle naked. Vertical fins covered more or less over basal portions with minute scales. Scales with 10 or 11 complete circuli, all cycloid. Lateral line on left side only, arch 8 to  $8 \frac{1}{5}$  in straight section to caudal base.

D. 100 to 102, fin height  $1 \frac{1}{3}$  to  $1 \frac{2}{5}$  in total head length; A. 80 to 83, fin height  $1 \frac{1}{4}$  to  $1 \frac{2}{5}$ ; caudal  $1 \frac{1}{8}$ , ends in median point behind; least depth of caudal peduncle  $2 \frac{3}{4}$  to 3; pectoral  $1 \frac{3}{4}$  to  $1 \frac{4}{5}$ ; ventral  $1 \frac{1}{3}$  to  $1 \frac{2}{5}$ .

Left side buff, becoming nearly cream buff marginally or about interradiial regions. Orbits grayish. Vertical fins all more or less brownish. <sup>Right</sup>~~Right~~ side whitish, vertical fins darker.

Persian Gulf, east coast of India, Burma.

D.5442. San Fernando Point Light, N.39°E., 8.4 miles (lat.  $16^{\circ}30'36''$ N., long.  $120^{\circ}11'06''$ E.), west coast of Luzon. In 45 fathoms. May 11, 1909. Length 68 to 77 mm. 4 examples.



Laeops kitaharae Smith and Pope

Laeops kitarharae Smith and Pope, Proc. U. S. Nat. Mus., vol. 31, p. 496,  
fig. 12, 1906 (type locality : Kagoshima). —Jordan, Tanaka, Snyder,  
Journ. College Sci., vol. 33, p. 317, fig. 265 (copied), 1913 (com-  
piled). —Tanaka, Journ. Fac. Sci. Mus. Tokyo, sect. 4, Zool., vol. 3,  
pt. 1, p. 38, Nov. 4, 1931 (reference).



Laeops lanceolata Franz

Laeops lanceolata Franz, Abhandl. Kon. Bayer. Akad. Wiss., vol. 4, Suppl.

Band 1, p. 52, pl. 8, fig. 60, 1910 (type locality : Fukuura; Dzushi).

—Jordan, Tanaka, Snyder, Journ. College Sci. Tokyo, vol. 33, p. 314,

1913 (reference).

?Laeoptichthys fragilis Hubbs, Proc. U. S. Nat. Mus., vol. 48, p. 460,

pl. 26, fig. 4, 1915 (type locality : Suruga Gulf, 47 fathoms).



Laeops lophoptera (Alcock)

Scianectes lophoptera Alcock, Journ. Asiatic Soc. Bengal, vol. 58, pt. 2,

No. 3, p. 284, pl. 16, fig. 2, 1889 (type locality : 16 miles east of

the mouth of the Devi River, 68 fathoms). —Goode and Bean, Oceanic

Ichth., p. 440, 1895 (name). —Alcock, Journ. Asiatic Soc. Bengal, vol.

65, pt. 2, p. 329, 1896.

Laeops lophoptera Norman, Rec. Indian Mus., vol. 29, pt. 1, p. 39, April

1927 (types).



Laeops macrophthalmus (Alcock)

Scianectes macrophthalmus Alcock, Journ. Asiatic Soc, Bengal, vol. 58,  
 pt. 2, No. 3, p. 292, pl. 16, fig. 4, 1889 (type locality : 40 miles  
 south west of Akyab, 100 fathoms); Ann. Mag. Nat. Hist., ser. 6, vol.  
 , p. 398, 1889 ( ); ser. 6, vol. 6, p. 216,  
 Sep. 1890 (Bengal Bay, 98 to 102 fathoms). —Goode and Bean, Oceanic  
 Ichth., p. 440, 1895 (name). —Alcock, Journ. Asiatic Soc. Bengal,  
 vol. 65, pt. 2, p. 329, 1896 ( ); Illustrat. Zool.  
Investigator, pt. 5, pl. 23, fig. 1, 1898.

Laeops macrophthalmus Alcock, Cat. Deep. Sea Fishes Ind. Mus., p. 128,  
 1899 (Bengal Bay; Arabian Sea; 98 to 107 fathoms). —Regan, Journ.  
 Bombay Nat. Hist. Soc., vol. 16, p. 329, 1905 (Sea of Oman). —  
Norman, Rec. Indian Mus., vol. 29, pt. 1, p. 38, April 1927 (lat. 7°  
 N., long. 76°E.; off Calicut; Bengal Bay; types; 98 to 107 fathoms).



Laeops nigrescens Lloyd

Laeops nigrescens Lloyd, Rec. Indian Mus., vol. 1, p. 9, 1907 (type

<sup>l</sup>  
locality : Illustr. Zool. Investigator, pt. 9, pl. 43, fig. 2, 1908;

Mem. Indian Mus., vol. 2, p. 161, 1909 (Gulf of Aden, 130 fathoms).

—Norman, Rec. Indian Mus., vol. 29, pt. 1, p. 38, fig. 10, April

1927 (types ; Gulf of Aden, 130 fathoms).



Laeops parviceps Günther

Laeops parviceps Günther, Rep. Voy. Challenger, vol. 1, pt. 6, p. 29,

pl. 15, fig. A, 1880 (type locality : off Twofold Bay, New South

Wales). — McCulloch, Austral. Mus. Mem., vol. 5, pt. 2, p. 278,

Sep. 10, 1929 (reference). — Weber and Beaufort, Fishes Indo Austral.

Archip., vol. 5, p. 116, fig. 23, 1929 (Arafura Sea).

Depth  $2 \frac{3}{4}$  to  $2 \frac{4}{5}$ ; head  $5 \frac{3}{5}$  to  $5 \frac{2}{3}$ , width  $3 \frac{2}{5}$  to 4. Snout tip to lower orbit 6 to  $6 \frac{1}{2}$  in head from snout tip; lower orbit 4 to  $4 \frac{4}{5}$ , greater than snout,  $\frac{1}{5}$  to  $\frac{1}{4}$  in advance of larger upper orbit; maxillary nearly vertical reaches to or  $\frac{1}{8}$  in lower orbit, narrow or expansion less than  $\frac{1}{2}$  of pupil, length 4 to  $4 \frac{2}{5}$  in head from snout tip; interorbital ridge narrow ridge 2 to 3 in lower orbit. Gill rakers 4 + 7 short points,  $\frac{1}{3}$  of gill filaments, which  $1 \frac{1}{2}$  in lower orbit.

Scales 92 to 95 in lateral line to caudal base and 5 or 6 more on latter; 22 above, 23 below. Muzzle naked. Minute Scales on vertical fins basally. Scales thin, feeble, very deciduous. Scales with 13 to 15 short marginal parallel basal striae; 8 to 10 complete circuli. Lateral line arch  $7 \frac{3}{5}$  to  $8 \frac{3}{4}$  in straight section, not distinct on right or blind side.

D. 101 to 105, fin height  $1 \frac{1}{8}$  to  $1 \frac{1}{5}$  in total head length; A. 84 or 84, fin height  $1 \frac{2}{5}$  to  $1 \frac{3}{5}$ ; caudal  $1 \frac{1}{8}$ , ends in median pointed angle behind; least depth of caudal peduncle  $2 \frac{1}{2}$  to  $2 \frac{3}{4}$ ; pectoral  $3 \frac{3}{4}$  to 4; ventral  $1 \frac{1}{5}$  to  $1 \frac{1}{4}$ .



Left side largely ochraceous buff, becoming paler or more buff about interradiial regions of body. Body also with irregular or soiled-like brownish cloudings. Orbits neutral gray. Fins pale or whitish, verticals becoming dusky or blackish brown terminally. Blind or right side buff to whitish, vertical fins all brownish ~~terminally~~<sup>terminally</sup>, though paler than on left side.

Arafura Sea, New South Wales. My examples with smaller orbits than shown in Beaufort's figure.

4053. D.5453. Legaspi Light, S.58°W., 4.5 miles (lat. 13°12' N., long. 123°49'18"E.), east coast of Luzon. In 146 fathoms. June 7, 1909. Length 87 mm.

D.5442. San Fernando Point Light, N.39°E., 8.4 miles (lat. 16°30'36"N., long. 120°11'06"E.), west coast of Luzon. In 45 fathoms. May 10, 1909. Length 76 mm.



Laeops variegata Franz

Laeops variegata Franz, Abhandl. Kon. Bayer. Akad. Wiss., vol. 4, Suppl.

Band 1, p. 63, pl. 8, fig. 59, 1910 (type locality : Fukuura). —

Jordan, Tanaka, Snyder, Journ. College Sci. Tokyo, vol. 33, p. 314,

1913 (reference).



Genus Lepidoblepharon Weber

Lepidoblepharon Weber, Siboga Fishes, vol. 57, p. 421, 1913. (Type

Lepidoblepharon ophthalmolepis Weber, monotypic.)

Eyes on right side, separated by narrow scaly space. Mouth wide. Teeth small, in bands in jaws. Head of vomer projecting into mouth, toothless or with few teeth on its hind border, rest of palate toothless. Gill membranes united below throat. Gill rakers long. Scales firm, ctenoid on colored side where also covering snout, jaws and upper surfaces of eyes; cycloid on blind side. Lateral line arched over pectoral. Dorsal and anal rays simple or split at ends and last anal more distinctly forked. Dorsal begins near snout tip; without enlarged rays. Both pectorals developed. Right ventral well before left.



Lepidoblepharon ophthalmolepis Weber

Lepidoblepharon ophthalmolepis Weber, Siboga Exped., vol. 57, p. 422, pl. 6, fig. 7, 1913 (type locality : lat. 5°40'S., long. 132°26'E., 310 fathoms; Arafura Sea near Kei Islands). —Weber and Beaufort, Fishes Indo Austral. Archip., vol. 5, p. 143, fig. 36, 1929 (type).

Depth  $2 \frac{1}{4}$ ? to  $2 \frac{1}{2}$ ; head  $2 \frac{3}{4}$  to  $2 \frac{7}{8}$ , width 5. Snout tip to lower orbit  $4 \frac{2}{5}$  in head from snout tip; lower orbit  $2 \frac{3}{5}$  to  $3 \frac{1}{5}$  in head from snout tip, greater than snout, opposite upper orbit; maxillary extends  $\frac{2}{5}$  in lower orbit, expansion  $4 \frac{3}{4}$  in lower orbit, length  $1 \frac{7}{8}$  in head from snout tip; interorbital narrow bony keel. Gill rakers 5 + 10, lanceolate,  $1 \frac{2}{3}$  in lower orbit, twice length of gill filaments.

Scales 48 or 49 in lateral line to caudal base and 4 or 5 more on latter; 16 above, 17 below. Caudal base scaly, other fins scaleless, with 8 to 16 basal radiating striae; 17 to 22 short apical denticles, with 1 or 2 transverse series of basal elements; circuli fine. Lateral line on both sides, anterior arch  $2 \frac{2}{5}$  to  $3 \frac{1}{8}$  in straight section to caudal base.

D. 63 or 64, fin height  $2 \frac{1}{2}$  in total head; A. 45, fin height 3; caudal  $1 \frac{1}{3}$ , convex behind; least depth of caudal peduncle  $2 \frac{7}{8}$ ; pectoral  $2 \frac{7}{8}$ ; ventral  $3 \frac{1}{5}$ .

Right side uniformly brownish. Orbits slate gray. Peritoneum showing through body walls neutral gray. Left side whitish, vertical fins more or less grayish.

East Indies, Philippines. Heretofore only known from the type, a specimen 122 mm long.



1 example. D.5260. Balanja Point, N.28°W., 7.20 miles (lat. 12°25'35"N., long. 121°31'35"E.), off southeastern Mindoro. In 234 fathoms. June 3, 1908. Length 118 mm.

4134. D.5585. Sipadan Island (M.). S.89°W., 12 miles (lat. 4°7'N., long. 118°49'54"E.), Sibuko Bay, Borneo. In 476 fathoms. September 28, 1909. Length 118 mm. Front of head damaged.