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Family Centrolophidae

Body oblong or elongate, compressed. Head compressed. Mouth cleft lateral, moderate. Upper jaw protractile. Teeth small, conic, in jaws and on palate. Nostrils double. Opercles unarmed. Bones of head sometimes serrulate. Gill membranes free from isthmus. Branchiostegals 5 or 6. Esophagus with longitudinal plications. Pyloric appendages very numerous. Vertebrae 25 to 28, of which 12 to 15 caudal. Scales cycloid, moderate, adherent. Lateral line complete, unarmed, largely axial. Dorsal more or less divided, spinous portion shorter than soft portion, not well developed, spines usually short. Anal similar, shorter. Caudal lunate. Caudal peduncle rather stout. Pectoral

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moderate or long. Ventrals well developed, present throughout life.

A large family of marine fishes, some pelagic or bathypelagic. They feed on crustaceans, medusae or other invertebrates and small fishes.

Analysis of Genera

a. Snout shorter; mouth small, maxillary reaches to or about $\frac{1}{2}$ in eye; gill rakers long, fine, 15 to 39 below; fins large, pectoral and lobes of soft dorsal and anal often greatly extended.

b. Thunninae. Body wholly scaly; vertebrae 31, of which 21 caudal.

c. Second dorsal and anal not longer than first dorsal.

d. Pectoral shorter, not reaching vertical of second dorsal origin; markings on belly transverse, constantly present. Thunnus.

d.² Pectoral very long, reaches second dorsal finlet; markings on belly longitudinal reticulations. Germo.

c.² Second dorsal and anal longer than first dorsal.

e. Lower gill rakers 15 to 18.

f. Pectoral passes second dorsal origin, long as head. Parathunnus.

Analysis of Genera

- a¹ Centrolophinae. Lateral line arched anteriorly, becomes straight or axial on side of tail before caudal peduncle.
- b¹ Body elongate. Centrolophus.
- b² Body ovate. Murus.
- a² Homelinae. Lateral line concurrent with profile of back.
- c¹ Dorsal spines 10 to 12, slender, at least high as soft dorsal.
- d¹ Teeth on vomer and palatines; dorsal spines 11 or 12.
- e¹ Dorsal rays 25 to 27, anal 25 to 27; scales 64 to 66, 4 or 5 above.
- e² Dorsal rays 30, anal 30; scales 125, 10 above. Homelus.
- d² Teeth on vomer and tongue, at least in young; body oblong. Icticus.
- f¹ Eye without adipose lid. Cubiceps.
- f² Eye with broad posterior adipose lid. Arionma.

d.³ Palate toothless; body ovate.

g.¹ Scales 34 to 56. Psenes.

g.² Scales 140. Lepipsenes.

c.³ Dorsal spines much shorter than soft rays.

h.¹ Maxillary with small supplemental bone; Dorsal spines 8.

Seriotelella.

h.² Maxillary without supplemental bone.

i.¹ Dorsal spines 5 or 6. Psenopsis.

i.² Dorsal spines 8 or 9. Bathyseriola.

Genus Centrolophus Lacépède

Centrolophus Lacépède, Hist. Nat. Poiss., vol. 4, p. 441, 1803. (Type Perca nigra Gmelin, monotypic.)

Acentrolophus hardo, Giorn. Fis. Pavia (Prodr. Ichth. Adriat.), vol. 1, p. 62, 1827. (Type Acentrolophus maculatus hardo, monotypic.)

Pompilus (not Munding 1832) Lowe, Proc. Zool. Soc. London, p. 81, 1839. (Type Centrolophus pompilus Cuvier, monotypic.)

Scichthys Jordan and Gilbert, Proc. U. S. Nat. Mus., vol. 3, p. 305, 1880 (1881). (Type Scichthys lockingtoni Jordan and Gilbert, monotypic.)

~~Españ. Hist. Nat. Madrid, vol. 14, 1885, p. 16 (Cebu; Rubi, New Guinea). $\frac{1}{m}$~~

~~Day, Fauna British India, Fishes, vol. 2, 1889, p. 30. $\frac{1}{m}$ Weber, Zool. Forschungs-~~

~~Australien, ^{Malay Arch.,} Semon, vol. 5, 1895, p. (104) 264 (coast of New Guinea). $\frac{1}{m}$ Elera,~~

~~Cat. Fauna ^{de} Filipinas, vol. 1, 1895, p. 480 (Luzon, Manila Bay, Cebu). $\frac{1}{m}$ Jordan~~

~~and Snyder, Annotat. Zool. Japon., vol. 3, 1901, p. 84 (Nagasaki). $\frac{1}{m}$ Jordan and~~

~~Richardson, Bull. Bur. Fisher., vol. 27, 1907 (1908), p. 260 (Cuyo). $\frac{1}{m}$ Snyder,~~

~~Proc. U. S. Nat. Mus., vol. 42, 1912, p. 501 (Okinawa) ^{Person's Ceylon Administrat. Rep., 1915-18, p. 117.} $\frac{1}{m}$ Fowler, Accar. Papers~~

~~Bishop Mus., vol. 8, no. 7, 1923, p. 384 (Honolulu); Proc. Acad. Nat. Sci.~~

~~Philadelphia, 1923, p. 41 (Madagascar); Fowler and Bean, Proc. U. S. Nat. Mus.,~~

~~vol. 62, 1922, p. 44 (Zamboanga).~~

Toledia Ribeiro, Arch. Mus. Nac.
Rio de Janeiro, vol. 17, Stromateidae,
p. 5, 1915. (Type Toledia
macrophthalmia Ribeiro, monotypic.)

3 examples. Mahinog, Camiguin Island.
August 2, 1909. Length 50 to 57 mm.

3 examples.

11870, 12425. Malabang market, Mindanao.
May 22, 1908. Length 201 to 211 mm.

6685, 17608. Manila market. July 29,
1908. Length 211 to 318 mm.

7295. Mansalay, Mindoro. June 4, 1908.
Length 63 to 150 mm. 3 examples.

1 example. [57.] Hogas Point, Pinay.
February 4, 1908. Length 70 mm.

13889 [952]. Observatory Island.
December 19, 1908. Length 89 mm. Golden lateral
blotch, between dorsals. Soft dorsal and anal barred yellow. Paired fins pink.
13480, 13483. Port San Pio Quinto,

November 10, 1908. Length 97 to 121 mm.
6 examples. Port San Vicente.

November 18, 1908. Length 60 to 104 mm.

Centrolophodes Gilchrist and Von
Bonde, Fish. Marine Surv. South
Africa, Spec. Rep. no. 4, no. 4, p. 2,
1923. (Type Centrolophodes^{oides} irvini
Gilchrist and Von Bonde,
monotypic.)

(Red Sea). ¹/_m Günther, Cruise of Curacoa, Brechley, 1873, p. 409

(Solomons); Journ. Mus. Godeffroy, vols. 2-3, pts. 5-6, 1874, p. 57, pl. 4

(Peleu-Islands, Paumotu, Society, Hervey, Kingmsills, Solomon Islands, Upolu).

¹/_m Day, Fishes of India, pt. 1, 1875, p. 124. ¹/_m Bleeker, Verhandl.

Kon. Akad. Wetensch. Amsterdam, vol.

15, no. 3, 1875, p. 25 (Java, Coos, Bawean, Bali, Sumatra, Nias, Celebes,

Timor, Halmahera, Ternate, Ceram, Amboina, Banda, Letti, Ruu). ¹/_m

Martens, Preuss. Exped. Ost Asien, 1876, p. 387 (Ternate). ¹/_m Günther, Rep. Voy.

Challenger, vol. 1, 1880, p. 56 (Hares Harbor, Admiralty Islands). Macleay,

Proc. Linn. Soc. New South Wales, vol.

5, 1881, p. 405 (copied Kner); vol. 7, 1882,

p. 245 (New Guinea). ¹/_m Meyer, An. Soc.

769

Body elongate, compressed. Head moderate. Snout obtuse. Eye little advanced. Mouth moderate or small. Maxillary slips under preorbital along entire upper edge and reaches eye. Teeth only in jaws, small, tongue and palate toothless. Nostrils together. Gill rakers lanceolate. Branchiostegals 7. Air bladder small. Pyloric caeca 9 or 10. Oesophagus with lengthwise folds. Vertebrae 25. Scales minute, rather deciduous. Soft vertical fins scaled. Lateral line arched anteriorly, becomes straight before caudal peduncle. Dorsal fin long, continuous, spines slender and indistinct, graduated rays ~~28~~ to 41. Anal rays 20 to 30 and 3 front ones as weak, graduated spines. Caudal furcate. Pectoral

Johnius goma (Tanaka) ← 129

type locality:

- 10 Sciaena goma TANAKA, Zool. Mag. Tokyo, vol. 27, (1915, p. 615) (Nagasaki);
 9 Fishes of Japan, vol. 22, (1916, p. 392, pl. 107, fig. 327) (Nagasaki).

Depth $3\frac{1}{3}$; head 3. Snout $3\frac{2}{3}$ in head; eye little less than 7; maxillary nearly reaches $\frac{1}{2}$ in eye, expansion nearly equals eye, length $2\frac{3}{8}$ in head; lower jaw little shorter than upper; rather wide band of villiform teeth in jaws, upper band wider; upper outer row of large teeth, lower inner row little enlarged; preopercle with feeble serrae. Gill rakers 5+7, besides rudiments, longest 4 in eye.

Scales 78 in vertical and 57 oblique rows along above lateral line to caudal base; 52 pores in lateral line to caudal base; 9 scales above, 13 below; caudal scaled basally; dorsal and anal membranes scaleless.

D. XI, 22, fourth spine $2\frac{3}{4}$ in head, first ray $2\frac{3}{5}$; A. II, 7, second spine $3\frac{2}{3}$, 2 in postocular, second ray 2, or $2\frac{1}{2}$ in head; caudal $1\frac{1}{2}$ cuneate; least depth of caudal peduncle $3\frac{4}{5}$; pectoral $1\frac{2}{3}$; ventral 2.

Dark brown, slightly paler below. Slightly darker parallel streaks obliquely up and back, formed by punctulations on center of each scale. Darker spots dispersed rather sparsely in soft dorsal, much fewer below lateral line and on head. Mouth white, dusky in pharynx. Dorsal light dusky. Anal and paired fins blackish brown, Caudal paler and indistinctly spotted on upper half, lower much darker. Length, 355 mm. (Tanaka.)

Nagasaki, Japan.

770
moderate. Ventral thoracic,
moderate, with spine and 5
rays.

Species few.

Leaded
Follow - Incl Caps

Atractoscion aequidens (Cuvier)

1129

type locality

Otolithus aequidens CUVIER, Hist. Nat. Poiss., vol. 5, 1830, p. 66 (Cape of Good Hope). - ANDREW SMITH, Ill. Zool. South Africa, Fishes, 1849, pl. 17 (South Africa; Table Bay). - PAPPE, Synops. Edible Fish. Cape, 1853, p. 16 (Cape). - GÜNTHER, Cat. Fish. Brit. Mus., vol. 2, 1860, p. 306 (no locality). - BLEEKER, Nat. Tijds. Nederland. Indië, vol. 21, 1860, p. (50, 52) 64 (Cape). - CASTELNAU, Mém. Poiss. Afrique Australe, 1861, p. 10 (Simon's Bay). - REGAN, Ann. Natal Gov. Mus., vol. 1 pt. 3, 1908, p. 245 (Bird Island). - LEMPE, Deutsche Sudpolar. Exped., vol.

644

134789

668

15, pt. 2, 1914, p. 233 (Simonstown). - GILCHRIST and THOMPSON, Ann. Durban Mus., vol. 1, pt. 4, 1917, p. 350 (references). - THOMPSON, Marine Biol. Rep. South Africa, vol. 4, 1918, p. 77. - VON BONDE, Fisher. Mar. Surv. South Africa, Spec. Rep., vol. 1, 1923, p. 16 (South Africa).

Atractoscion aequidens BARNARD, Ann. South Afric. Mus., vol. 21, pt. 2, 1927, p. 575 (Table Bay, False Bay, Agulhas Bank to Algoa Bay, Natal, in 30 fathoms).

Otolithus atelodus GÜNTHER, Ann. Mag. Nat. Hist., ser. 3, vol. 20, 1867, p. 60 (Australia). - WOODS, Fish. Fisher. New South Wales, 1882, p. 54, pl. 17. - OGILBY, Edible Fishes New South Wales, 1893, p. 75, pl. 23; Sea Fisher. Rep. Thetis, 1898, p. 28 (off Broken Head, New South Wales, 16 to 48 fathoms).

type locality

Cynoscion atelodus STEAD, Fishes of Australia, 1906, p. 113 (New South Wales); Edible Fishes New South Wales, 1908, p. 67, pl. 38. - ROUGHLEY, Fishes of Australia, 1916, p. 115 (New South Wales).

Atractoscion atelodus OGILBY, Handb. Sydney, 1898, p. 130; Mem. Queens-

Analysis of Species

a.¹ Lateral line with long arch, nearly parallel with profile of back.

b.¹ D. 32; A. 20; eye $3\frac{1}{2}$. macrophthalmus.

b.² D. 37 to 41; A. 23 to 28.

c.¹ Depth 4; head $4\frac{1}{2}$.

d.¹ Pectoral $1\frac{4}{5}$ in head. maoricus.

d.² Pectoral less than half of head. lockingtoni.

c.² Depth $2\frac{3}{5}$ to $3\frac{2}{5}$; head $2\frac{1}{2}$ to 4.

b.³ D. 57; A. 38. niger.
huttoni.

a.² Lateral line with short arch over pectoral, then extends along middle of body; D. 45; A. 30. britannicus.

Centrolophus macrophthalmus
(Ribeiro)

Toledia macrophthalma Ribeiro,
Arch. Mus. nac. Rio de Janeiro,
vol. 17, Stromateidae, p. 5, ~~1915~~
pl., lowest figure, 1915 (type
locality, Macahé, Brazil).

Family Mullidae Cuvier

1040

Body oblong, elongate, little compressed. Head small, upper profile nearly parabolic. Eye moderate, larger in young, elevated, median or postero-median. Maxillary partly slips below preorbital. No supplementary maxillary. Mouth small, somewhat protractile, subterminal. Teeth feeble, villiform, in bands in jaws, often on vomer and palatines. Chin with 2 long simple barbels. Nostrils paired, far apart. Gill membranes free from isthmus. Gills 4, slit behind fourth. Pseudobranchiae present. Branchiostegals 4. Air bladder usually present, simple. Pyloric coeca few or moderate in number. Scales large, cycloid or finely ctenoid. Lateral line complete, simple, tubes often branched. Dorsals 2, well

Depth $3\frac{1}{3}$; head $3\frac{1}{2}$. Snout $4\frac{2}{3}$ in head, obtuse; eye $3\frac{1}{2}$, greatly exceeds snout; maxillary reaches eye, 3 in head; interorbital convex, rather high.

Scales 96 in lateral line; 49 transversely. Lateral line with long front arch, becomes median over front of anal, then straight or axial to middle of caudal base.

D. VII, 26, height at front of soft dorsal $2\frac{7}{8}$ in total head length; A. 20, height at front of fin $2\frac{4}{5}$; caudal 1, well forked; least depth of caudal peduncle $3\frac{2}{5}$; pectoral $1\frac{1}{5}$; ventral $2\frac{4}{5}$, inserted below pectoral base.

Purplish, with dark streaks obliquely on flanks and above anal base. Length 680 mm. (Ribeiro.)

Brazil.

Centrolophus maoricus Ogilby

Centrolophus maoricus Ogilby,
Rec. Austral. Mus., vol. 2, Pt. 5,
p. 64, Sep. 1893 (type locality,
New Zealand). — Regan, Ann.
Mag. Nat. Hist., ser. 7, vol. 10,
p. 195, 1902 (copied). — McCulloch,

Austral. Mus. Mem., no. 5, pt. 1, p.
122, June 29, 1929 (reference);

Rec. Austral. Mus., vol. 12, no. 8, p.
176, pl. 26, fig. 2, 1919.

Fishes New South Wales, ed. 3, p.
43, pl. 16, fig. 155a, 1934.

— Regan, British Antarctic "Terra
Nova" Exped., Zool., vol. 1, no. 1, p. 19,
June 27, 1914 (Three Kings Islands);
vol. 1, no. 6, p. 144, pl. 10, fig. 7, March
25, 1916 (lat. $34^{\circ}45'S$, long. $170^{\circ}45'E$, in
2 meters).

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Family Cheilodipteridae.

Body oblong or elongate, sometimes compressed and elevated. Head rather large and compressed. Mouth cleft wide. Teeth villiform, in bands in jaws, on vomer and palatines, none on tongue; canines sometimes present. Preopercle with double ridge, edges entire or serrate. Opercular spine little developed. Pseudobranchial present, usually well developed. Branchiostegals 6 or 7. Pyloric appendages few, when present. Lower pharyngeals separate, with sharp teeth. Scales usually rather large, occasionally small, striated and ctenoid, sometimes cycloid, sometimes deciduous. No axillary ventral scales. Cheeks scaled. Lateral

Depth 4; head $4\frac{1}{2}$. Snout little larger than eye; eye little over 4 in head, rather less than interorbital; maxillary reaches $\frac{1}{4}$ in eye.

Scales small, each pierced by central circular pore. Lateral line decurved, becomes straight below highest part of dorsal.

D. 38, rays graduated larger to twelfth to fourteenth, then abruptly shorter, hind part of fin emarginate; A. 25, half long as dorsal; pectoral less than half of head; ventral long as snout.

Uniform brown, darkest above. Sides of head washed with dull blue, fins and opercles with gold. (Agilby.)

New South Wales, New Zealand.

Centrolophus lockingtoni
(Jordan and Gilbert).

Scichthys lockingtoni Jordan
and Gilbert, Proc. U. S. Nat. Mus.,
vol. 3, p. 305, 1880⁽¹⁸⁸¹⁾ (type locality,
San Francisco market); Bull.
U. S. Nat. Mus., no. 16, p. 621, 1882
(copied); — Jordan and Evermann,

Bull. U. S. Nat. Mus., no. 47, pt. 1,
p. 969, 1896 (copied); pt. 4, pl. 151,
fig. 406, 1900. — Regan, British Antarctic
Exped. "Terra Nova" Exped., Zool. vol. 1, no. 1, p. 19, June 27, 1914 (type).
— Goode and Bean, Oceanic Ichth.,
p. 216, pl. 62, fig. 226, 1895 (off
Washington).

Schedophilus lockingtoni Günther,
Rep. Voy. Challenger, vol. 22, p. 46
1886 (compiled).

Depth 4; head $4\frac{1}{4}$. Snout 4 in head from snout tip; eye $4\frac{1}{2}$, $1\frac{1}{5}$ in snout; maxillary reaches $\frac{1}{5}$ in eye, expansion $1\frac{3}{4}$ in eye, length 3 in head from snout tip; teeth in jaws only, minute, sharp, close set, even. Gill rakers long, slender, close set, stiff, $\frac{3}{4}$ of eye.

Scales 120, soft, smooth, even, smaller below. Lateral line straight, axial, continuous.

D. 40, fin height highest posteriorly or $3\frac{1}{8}$ in total head length; A. 28, fin height 3; caudal $1\frac{1}{3}$, rounded; least depth of caudal peduncle $2\frac{1}{2}$; pectoral $1\frac{4}{5}$, rays 16, fin rounded.

Brown, paler below, somewhat punctulate.

California, Washington.

U. S. N. M., No. 27397. Off Washington.

7425 and 12160. Malcochin Harbor,
Linacapan Island. December 19, 1908.

Length 195 to 252 mm. Lower gill rakers
18.

19658 and 19659. Mantacao Island,
west coast of Bohol. April 8, 1908.

Length 86 to 90 mm. Lower gill rakers 17.

6583. Maricaban Island near Sepoc.

July 21, 1905. Length 219 to 221 mm.

Lower gill rakers 18. 2 examples.

17687. Murcielagos Bay, Mindanao.

August 2, 1909. Length 230 mm.

9231. Opol, Mindanao. August 14, 1909.

Length 258 mm. Lower gill rakers 19.

21565 and 21566. Piles Island. September
12, 1909. Length 97 to 156 mm.

22712. Port Caltom, Bussuanga Island.

December 15, 1908. Length 142⁷ mm. Lower
gill rakers 20.

9130 and 19478. Port Caltom, Pangauron
River. December 16, 1908. Length 151 to 192 mm.

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Centrolophus niger (Gmelin)

Perca nigra Gmelin, Syst. Nat.
Linn., vol. 1, p. 1321, 1789 (type
locality, Cornwall, England)
(on Pennant).

Holocentrus niger Lacépède, Hist.
Nat. Poiss., vol. 4, pp. 330, 359, 1802
(on Gmelin).

Centrolophus niger Lacépède, Hist.
Nat. Poiss., vol. 4, pp. 441, 442, pl.
10, fig. 2, 1802 (Fécamp, France).
— Jordan and Evermann, Bull.
U. S. Nat. Mus., no. 47, pt. 1, p. 963,
1896 (^{compiled} ~~Dennis, Massachusetts~~).

— Regan, Ann. Mag. Nat. Hist., ser. 7,
vol. 10, p. 195, 1902 (Mediterranean;
North Atlantic). — Barnard,
Ann. South African Mus., vol. 21, pt.
2, p. 895, pl. 33, fig. 1, Oct. 1927
(off St. Helena Bay; Saldanha Bay;
85 - 200 fathoms).

Centrolophus ~~form~~ liparis Risso,
 Hist. Nat. Eur. Mérid., vol. 3, p.
 337, 1826 (type locality, Nice).
 — Cuvier, Hist. Nat. Poiss., vol.
~~Centrolophus~~ ~~maxillo~~ 9, p. 345, 1833
 (copied).

Centrolophus pompilus (not Coryphaena
pompilus Linnaeus) Cuvier, Hist.
 Nat. Poiss., vol. 9, p. 334, pl. 269,
 1833 (Marseilles). — Günther, Cat.
 Fish. Brit. Mus., vol. 2, p. 403, 1860
 (no locality). — Goode and Bean,
 Oceanic Ichth., p. 214, fig. 222,
 1895 (Dennis, Massachusetts).

Centrolophus maculosus Harbo,
 Isis, no. 62, col. 478, 1827 (type
 locality, Adriatic Sea).

7
have found this condition more or
less general. The male at this season
may easily be known by its swollen chin.
The ova are carried about, packed
closely as a dense mass.

Centrolophus morio (Lacépède)
Cuvier, Hist. Nat. Poiss., vol. 9, p.
342, 1833 (type locality, Bologne).

Schedophilus elongatus Johnson,
Proc. Zool. Soc. London, p. 174, 1862
(type locality, Madeira).

Centrolophoides vivini Gilchrist
and Von Bonde, Fisher. Mar. Surv.
South Africa, Spec. Rep. 4, ^{vol. 4,} p. 3, pl.
17, fig. 1, 1923 (type locality,
west coast of South Africa north
of Paternoster Point, in 85 to 90
fathoms).

6

line usually complete and distinct. Dorsals well separated, first with 6 or 7 rather strong spines. Usually no dorsal sheath. Soft dorsal with spine and 7 to 10 rays. Anal short or like soft dorsal, spines usually 2, rarely 3. Ventrals thoracic, with spine and 5 rays.

Small fishes of tropical seas, abundant on coral reefs or in sheltered situations, some in deep water. Many are brilliant in color, often bright red or pink. Some are interesting in the habit of the male carrying the ova and very young in his mouth. Until the present time only a few species were known to use this method, though now we

Depth $2\frac{3}{5}$ to $3\frac{2}{5}$; head $2\frac{1}{2}$ to 4, width 2 to $2\frac{1}{4}$. Snout $3\frac{1}{2}$ to $4\frac{1}{4}$ in head; eye $3\frac{1}{8}$ to $5\frac{3}{4}$, greater than snout in young to subequal to $1\frac{1}{8}$ in snout with age, subequal with interorbital in young to $1\frac{3}{4}$ in interorbital with age; orbit $2\frac{3}{4}$ to $4\frac{3}{5}$ in head, nearly twice long as snout in young to subequal with age; maxillary reaches $\frac{2}{5}$ to $\frac{1}{2}$ in eye, expansion $1\frac{4}{5}$ to 3 in eye, length $2\frac{1}{3}$ to $2\frac{3}{5}$ in head; interorbital $3\frac{1}{4}$ to $3\frac{9}{10}$, low, broadly convex. Gill rakers 6 + 14, lanceolate, $1\frac{1}{5}$ in gill filaments, which $1\frac{1}{5}$ in orbit.

Scales about 123 along and close above lateral line to caudal base, 20 above, 30 below, 32 predorsal forward opposite hind eye edge; tubular scales 146 in

lateral line. Vertical fin bases all with fine scales.

Scales without striae; circuli 13 or 14 basally, 10 or 11 apically.

D. 35 to 39, fin height $1\frac{2}{3}$ to 2 in head; A. 23 to 25, fin height 2 to $2\frac{1}{4}$; caudal 1 to $1\frac{1}{8}$; least depth of caudal peduncle $2\frac{4}{5}$ to $4\frac{1}{8}$; pectoral $1\frac{1}{5}$ to $1\frac{1}{3}$, rays I or II, 19 or 20; ventral rays I, 5, fin $1\frac{2}{5}$ to $1\frac{4}{5}$ in head.

Dark brown generally, not paler below. Iris brownish. Fins more or less blackish brown. Young light brown, with 2 broad dark brown transverse bands, first opposite pectoral and second from posterior part of dorsal to anal, all reflected on both fins basally. Fins of

young all light or pale brownish,
paler than body.

North, ^{and eastern} Atlantic, Mediterranean,
South Africa, Japan, ~~Australia~~
~~and California~~

U. S. N. M., no. 44440. Dennis,
Massachusetts. V. H. Edwards.

Length 233 mm. Bay of Naples,

U. S. N. M., no. 48367. Italy.

S. E. Meek. Length 44 mm.
April 1897.

U. S. N. M., no. 49335, Genoa,
Italy. M. Bellotti. Length 270 mm.

A. N. S. P., nos. 11325 and 11326.
Italy. Bonaparte Collection (490).
Dr. J. B. Wilson. Length 264 to 903
mm.

787

Centrolophus huttoni Waite

Centrolophus huttoni Waite,

Trans. New Zealand Inst., vol.
42, p. 388, 1910 (type locality, Kaikoura).

— Regan, British Antarctic Exped.
"Terra Nova" Exped., Zool., vol. 1,
no. 1, p. 19, June 27, 1914 (reference).

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~~Pseudupeneus barberinus (Lacépède)
Mullus barberinus Lacépède, Hist. Nat. Poiss., vol. 3, 1802, pp. 283, 284, pl. 13, fig. 3. near Moluccas. $\frac{1}{m}$ Playfair, Fishes of Zanzibar, 1867, p. 40 (Zanzibar).
Mullus (Upeneus) barberinus Martens, Verhandl. zool. bot. Gesell. Wien, vol. 16, 1866, p. 378 (Kosse, Red Sea).
Upeneus barberinus Cuvier, Hist. Nat. Poiss., vol. 3, 1829, p. 642 (compiled). $\frac{1}{m}$ Rüppell, Neue Wirbelth. Fische, 1835, p. 101 (Massaua).
 $\frac{1}{m}$ Thiollière, Fauna Woodlark, 1857, p. 153 (Woodlark Island). $\frac{1}{m}$ Günther, Cat. Fishes Brit. Mus., vol. 1, 1859, p. 405 (Moluccas, India). $\frac{1}{m}$ Kner, Reise Novara, Fische, 1865, p. 70 (Java; Australia). $\frac{1}{m}$ Schmeltz, Cat. Mus. Godeffroy, no. 4, 1869, p. 14 (Kandavu).
 $\frac{1}{m}$ Klunzinger, Verhandl. zool. botan. Gesellsch. Wien, vol. 20, 1870, p. 745~~

789
Color faded. Length 776 mm.
(Waite.)

New Zealand.

59986 U.S.N.M. Post Jackson, New
South Wales. D.G. Stead. Length 110 to
117 mm. 2 examples

59987 U.S.N.M. Jaggerah, New
South Wales. D.G. Stead. Length 98 mm.

790

Centrolophus britannicus Günther

Centrolophus britannicus Günther,
Cat. Fish. Brit. Mus., vol. 2, p. 402,
1860 (type locality, Polperro).

— Regan, Ann. Mag. Nat. Hist.,
ser. 7, vol. 10, 1902 (type). —

Pellegrin, Bull. Soc. Zool. France,
vol. 37, p. 20, 1912.

— Regan, British Antarctic
"Terra Nova" Exped., Zool., vol. 1,
no. 1, p. 19, June 27, 1914 (reference).

Whitleyia new subgenus. Ambassia.

Belonoperca new subfamily. Serranidae.

Belonoperca new genus.

Belonoperca chabanaudi new species.

→ Pleuroperca new subgenus. Plectropomus.

Plectropomus truncatus new species.

Cephalopholis albomarginatus new species.

Chloristium swalesi new species.

Anthias albofasciatus new species.

Callopleiops new genus.

Callopleiops niveus new species.

Callopleiops argus new species.

The nomenclature made in the previous
instrument apply equally to the present one.

Depth 5; head 6. Snout short, obtuse, scarcely longer than eye; eye at first third in head; maxillary reaches below front eye edge.

Scales exceedingly small. Lateral line with short curve above pectoral, then median along body.

D. 45, length $1\frac{4}{5}$ in total, rays feeble, low, not elevated in anterior third; A. 30, origin opposite nineteenth dorsal ray, low like dorsal, fin $3\frac{1}{3}$ in total; caudal 6, forked; pectoral small; ventral very small, inserted close behind ventral.

Uniform brown. Length ~~65~~⁵²⁰ mm. (Günther.)

England. Only known from the type and Pellegrini's rediscovery.

Genus Murpus Cocco

Murpus Cocco, Giorn. Sci. Lett. Sicilia, vol. 42, p. 20, 1833. (Type Murpus imperialis Cocco, monotypic.)

Leirus (not Meigen 1823) Lowe, Proc. Zool. Soc. London, vol. 1, p. 143, 1833. (Type Leirus bennettii Lowe, monotypic.)

Leirus Günther, Rep. Voy. Challenger, vol. 31, pt. 2, p. 11, 1889. (Type Leirus bennettii Lowe,) (Emendation.)

Schedophilus Cocco, Giorn. Innom. Mess. Anim., vol. 3, no. 57, p. 57, 1834. (Type Schedophilus medusophagus Cocco, monotypic.)

Depth $3\frac{1}{8}$ to $3\frac{1}{4}$; head $2\frac{4}{5}$ to 3, width $2\frac{1}{10}$ to $2\frac{1}{5}$. Snout $2\frac{1}{3}$ to $2\frac{2}{5}$ in head; eye $3\frac{3}{4}$ to $3\frac{7}{8}$, $1\frac{3}{5}$ to $1\frac{2}{3}$ in snout, 1 in interorbital; maxillary reaches $\frac{3}{4}$ to $\frac{4}{5}$ in snout, expansion $1\frac{1}{2}$ to $1\frac{3}{5}$ in eye, length $2\frac{7}{8}$ to $3\frac{1}{5}$ in head; barbels reach opposite hind preopercle edge above, length $1\frac{2}{5}$ to $1\frac{3}{4}$ in head; teeth uniserial, simple, conic, small, none on palate; interorbital $3\frac{2}{3}$ to 4, but slightly elevated convexly. Gill rakers 6+22, lanceolate, $1\frac{1}{4}$ in gill filaments which $1\frac{3}{4}$ in eye.

Scales 26 to 28 in lateral line to caudal base and 3 to 4 more on latter; 2 or 3 above, 6 or 7 below, 14 predorsal; 3 rows on cheeks to preopercle ridge. Tubes of lateral line with 3 to 6 tubules.

Cruis Valenciennes, Hist. Nat.
Canaries, Poiss., vol. 2, pt. 2, p. 45,
1836-44. (Type Cruis bertheloti
Valenciennes, monotypic.)

Palinurus (not Faber 1798) De Kay,
New York Fauna, vol. 3, p. 118, 1842.
(Type Coryphaena perciformis
Mitchill, monotypic.)

Hyperoglyphe Günther, Cat. Fish.
Brit. Mus., vol. 1, p. 337, 1859. (Type
Diagramma porosa Richardson,
monotypic.)

Palinurichthys Bleeker, Act. Soc.
Sci. Ind. Neerl. (Enumerat. Pisc.),
vol. 6, p. 22, Nov. 1859. (Type
Coryphaena perciformis Mitchill,
virtually, as Palinurichthys Bleeker
proposed to replace Palinurus De Kay.)

Pseudupeneus signatus (Günther)

Car 179

Upeneus signatus Günther, Ann. Mag. Nat. Hist. London, series 3, vol. 20, 1867, p. 59. Port Jackson, Australia. 1_m

Ogilby, Australian Mus. Mem., vol. 2, 1889, p. 56. 1_m Stead, Fishes of Australia, 1906, p. 131 (New South Wales). 1_m McCulloch, Fishes New South Wales, ed. 2, 1927, p. 60.

Mullus signatus Ogilby, Edible Fishes New South Wales, 1893, p. 35, pl. 11.

Upeneus spilurus (not Bleeker 1854)

Bleeker, Nederland. Tijdschr. Dierk., vol. 2, 1865, p. 71 (Port Jackson); Verslagen Med. Akad. Wetensch. Amsterdam, vol. 15, 1863, p. 447 (Port Jackson).

Pammelas Günther, Cat. Fish.
Brit. Mus., vol. 2, p. 485, 1860
(June). (Type Coryphaena
perciformis Mitchell, monotypic.)

Eurumetopox Morton, Pap. Proc.
Roy. Soc. Tasmania, p. XLVII, 1887
(1888). (Type Eurumetopox
johnstonii Morton, monotypic.)

Ocyrius Jordan and Hubbs,
Mem. Carnegie Mus., vol. 10, no. 2,
p. 226, June 27, 1925. (Type
Centrolophus japonicus
Steindachner and Döderlein,
orthotypic.)

D. VIII - I, 8, I, third spine $1\frac{1}{2}$ in head, first branched ray $2\frac{4}{5}$, last ray shorter than first; A. I, 6, I, first branched ray $2\frac{1}{3}$; caudal $1\frac{1}{8}$, deeply forked, with sharply pointed lobes; lateral line $2\frac{3}{4}$; pectoral $1\frac{2}{5}$; ventral $1\frac{3}{5}$.

Back gray brown, color generally well defined from general whitish color of sides and under surface. Blackish brown band from front side of snout to eye, wider than pupil though not wide as eye, then backward till below bases of last dorsal rays. Broad whitish saddle close behind last dorsal ray on front of caudal peduncle. Blackish brown round spot size of eye mostly close above lateral line about middle length of caudal peduncle. Iris pale yellowish.

795

Body ovate to oblong ovate,
compressed. Head rather small.
Mouth small or moderate.
Maxillary more or less exposed,
with small supplemental bone.
Preopercle usually distinctly
spinose. Subopercle and
interopercle denticulated. Gill
membranes not united. Gill
rakers long. Pseudobranchiae
present. Branchiostegals 5 to
7. Vertebrae 25. Oesophagus
with longitudinal plications.
Head above porous, integument
spongy. Scales small. Lateral
line arched anteriorly, becomes
straight before caudal peduncle.
Dorsal spines 4 to 9, rays 19 to
46. Anal spines 3, rays 16 to 27.
Caudal forked or emarginate.
Pectoral rays 19 to 22.

8 pt. Leaded

134789

153

- 12357, 13078. *Candaraman Island, Balabac. January 14, 1909. Length, 215 to
 □ 223 mm.
7628. *Cataingan Bay, Masbate. April 17, 1908. Length, 180 mm.
- 16861, 16863, [5627]. *Cataingan Bay. April 18, 1908. Length, 110 to 178 mm.
16094. *Cataingan Bay. May 14, 1909. Length, 103 mm.
- 7586, 7587, 15886, 15887. *Catbalogan, Samar. April 14, 1908. Length, 130
 □ to 250 mm.
- 9116, 20574. *Catbalogan. April 15, 1908. Length, 116 to 130 mm.
16335. Cas. Head, Endeavour Strait, Palawan. December 22, 1908. Length,
 □ 112 mm.
- 69, 70, 16306. Endeavor Strait, northwest coast Palawan. December 23, 1908.
 □ Length, 135 to 205 mm.
17303. Gigoso Point, Quinapundan Bay, Samar. July 28, 1909. Length, 185 mm.
- A429. Jolo market. March 6, 1908. Length, 156 mm.
- 154, 9027, 18555, 18556. Langao Point, Luzon. June 24, 1909. Length, 137 to
 □ 240 mm. (5) examples.
21171. *Malcochin Harbor, Linapacan Island. December 1908. Length, 218 mm.
22568. Malcochin Harbor. December 19, 1908. Length, 88 mm.
12026. Nabatas Point, Samar Island. July 24, 1909. Length, 237 mm.
11280. Pandanon Island. March 23, 1909. Length, 150 mm.
- 300, 17235 to 17239, 19299 to 19301. Pandanon Island. March 24, 1909.
 □ Length, 93 to 127 mm.
12057. Port Banalacan, Marinduque. February 23, 1909. Length, 200 mm.
- 6331, 9026. Port ~~Jamelo~~, ^{Hamilo}, Luzon. July 13, 1908. Length, 180 to 222 mm.
20961. Port Matalvi. Length, 96 mm.
6142. Puerta Princesa, Palawan. April 5, 1909. Length, 168 mm.
- 12015, 20944. San Miguel Harbor, Ticao Island. April 21, 1908. Length, 146
 □ to 180 mm.

Analysis of Species

a. Impus. Dorsal spines graduated posteriorly upward to higher soft rays.

b. D. IV, 41 to 46; A. III, 24 to 27; scales 136 to 148, 26 to 30 above, 60 to 70 below.

medusophages.

b. D. VIII or IX, 27 to 30; A. III, 21 to 24; scales 100 to 108, 21 or 22 above, 45 to 47 below.

maculatus.

b. D. VI or VII, 29 to 33 (or VIII or IX, 21 or 28); A. III, 21 to 24 (or 16 to 18); scales 95 to 110, 13 to 16 above, 30 to 37 below.

imperialis.

b. D. VIII or IX, 26 to 28; A. III, 18; scales 80 to 90; 12 to 14 below, 24 to 30 below.

peruanus.

a. Palinurichthys. Dorsal spines usually very short, median longest, not graduated up behind to soft rays; D. VIII to IX, 19 to 26; A. III, 15 to 21.

c.¹ median dorsal spines but
little shorter than soft dorsal
lobe. paucidens.

c.² median dorsal spines greatly
shorter than soft dorsal lobe.

d.¹ Pectoral $1\frac{1}{3}$ to $1\frac{2}{5}$ in head.

perciformis.

d.² Pectoral subequal with head.

e.¹ D. IX, 19 or 20; A. III, 15 or 16.

porosus.

e.² D. VII or VIII, 22 to 26; A. III,
18 or 19.

japonicus.

798

Murpus medusophagus (Cocco)

- Schedophilus medusophagus Cocco,
Giorn. Cabin. Messina, vol. 1, (1829)
p. 30, (type locality, Messina).
Günther, Cat. Fish. Brit. Mus., vol. 2, p. 412, 1860 (open sea).
Günther, Rep. Voy. Challenger, vol.
22. Journ. Mus. Godeffroy, vol. 5,
pt. 11, (1876), p. 149 (Tahiti); Rep.
Voy. Challenger, vol. 22, pt. 1, 1887,
p. 46, 1887 (Mediterranean; Ireland; mid-Atlantic; ^{Tahiti}).
— Goode and Bean, Oceanic Ichth.,
(1895), p. 214, pl. 53, fig. 227 (copied).
— Reg

— Fowler, Mem. Bishop Mus., vol. 10,
(1928), p. 139 (compiled).

Case 179

Girella zonata Günther

Girella zonata Günther, Cat. Fishes

British Mus., vol. 1, 1859, p. 429. Australian

Seas? ¹/_m Castelnau, Proc. Zool. Acclimatiz. Soc. Victoria, vol. 2, 1873, p. 42;

Proc. Linn. Soc. New South Wales, vol. 3, 1879, p. 350 (Port Jackson). ¹/_m Macleay,

Proc. Linn. Soc. New South Wales, vol. 5, 1881, p. 408 (copied Günther). ¹/_m McCulloch,

Fishes New South Wales, 1927, p. 62 (noted as not found in New South Wales since Castelnau's record).

Depth 3 in total; head 4 1/3. Snout broad, obtuse; eye 4 3/5 in head; maxillary reaches eye; ~~narrow~~ band of pluriserial, narrow, tricuspid teeth in each jaw, separated from posterior band of less developed similar teeth by groove; interorbital 3 in head; preopercle edge with some

Larus medusophagus Regan, Ann.
Mag. Nat. Hist., Ser. 7, vol. 10, p. 196,
1902 (Pacific; Atlantic;
Mediterranean).

138

Tubes in lateral line simple, well exposed, large; without basal seal. Scales with 12 or 13 basal radiating striae; 78 to 147 apical denticles ~~and~~ with 2 to 4 transverse series basal elements; ~~and~~ circuli fine.

D. VI - I, 9, I, second spine $1\frac{1}{5}$ to $1\frac{1}{3}$ in total head length, first ^{branched} ray $1\frac{1}{4}$ to $1\frac{1}{3}$; A. II, 8, I, second spine $1\frac{3}{5}$ to $1\frac{2}{3}$, first ^{branched} ray $1\frac{1}{2}$ to $1\frac{3}{5}$; caudal 1 to $1\frac{1}{10}$, slightly emarginate behind; least depth of caudal peduncle $1\frac{7}{8}$ to 2; pectoral $1\frac{1}{3}$ to $1\frac{2}{5}$; ventral $1\frac{1}{4}$ to $1\frac{1}{5}$.

Light brown generally, with some bright or silvered reflections on opercle and chest. Head above and on sides speckled with dusky to blackish brown, often with large dark blotch below hind

Depth $2\frac{1}{4}$ to $2\frac{1}{2}$; head 3 to 4. Snout long as eye; eye 3 to 4, less than interorbital; maxillary reaches $\frac{1}{2}$ in eye.

Scales 136 to 148 in lateral line; 26 to 30 above, 60 to 70 below. Lateral line arched anteriorly, becomes straight below twelfth dorsal ray.

D. 45 to 50, spines not distinct, rays graduated up to twentieth, then equal to fortieth, then graduated down, whole fin rounded; fin height $\frac{4}{9}$ to $\frac{3}{5}$ body depth; A. 27 to 30; caudal rounded, slightly emarginate behind; pectoral rounded in young, shorter than ventral, which reaches fifth anal ray, equals head; with age ventrals reach vent.

Pale olive, marbled with darker. Vertical fins punctulated with black. Length 100 mm. (Regan.)
Polynesia, Atlantic, Mediterranean.

801

Murpus maculatus (Günther)

Schedophilus maculatus Günther,
Cat. Fish. Brit. Mus., vol. 2, (1860)
p. 413, (type locality, China Sea);
Journ. Mus. Godeffroy, vol. 5, pt.
11, (1876) p. 148, (South Sea).

— Fowler, Mem. Bishop Mus., vol.
10, (1928) p. 139, (compiled).

Larus maculatus Regan, Ann. Mag. Nat.
Hist., ser. 7, vol. 10, (1902) p. 193, (Chinese
Sea).

22551 U.S.N.M. Iwaw, Japan.
Japanese Government. Length 210 mm.

70730 U.S.N.M. Tanegashima Island.
Albatross Collection 1906. Length 51 to
98 mm. 8 examples. As Girella leonina.

71009 U.S.N.M. Misaki, Sagami, Japan.
Albatross Collection 1906. Length 45 to 104 mm.
5 examples.

71010 U.S.N.M. Ikume, Satsuma, Japan.
Albatross Collection 1906. Length 75 to 96 mm.
(As Girella leonina. 6 examples.)

71391 U.S.N.M. Misaki, Sagami, Japan.
Bureau of Fisheries. Length 80 to 95 mm,
2 examples. As Girella leonina.

Schedophilus marmoratus Kner
 and Steindachner, Sitzs. Ber.
 Akad. Wiss. Wien, math.-naturw.
 Kl., vol. 54, pt. 2, (1866, p. 366.)
 (type locality, South Sea).

$2\frac{1}{4}$ to $2\frac{1}{3}$ in head, first ray 2 to $2\frac{1}{10}$;
 D. III, 12, I or 13, I, third spine $2\frac{1}{4}$ to
 $2\frac{3}{5}$, first ray $1\frac{9}{10}$ to 2; least depth
 of caudal peduncle 2 to $2\frac{1}{4}$; pectoral
 $1\frac{1}{8}$ to $1\frac{1}{5}$; ventral $1\frac{1}{3}$ to $1\frac{2}{5}$;
 caudal $3\frac{1}{8}$ to $3\frac{1}{3}$ in combined head
 and body to caudal base.

Largely uniform amber, under
 surface of head, belly and tail paler.
 Iris brown to slate gray. Hind edge
 of gill opening and narrow transverse
 band along pectoral base blackish
 brown. Fins all brownish, mostly
 little darker terminally.

China, Japan. Distinguished chiefly
 by its general uniform color, black
 edge to the gill opening and black
 bar across pectoral base.

903

Depth 2 to $2\frac{1}{3}$; head $3\frac{1}{5}$ to $3\frac{1}{3}$. Snout $\frac{1}{2}$ to $\frac{2}{3}$ of eye; eye 3 to $3\frac{1}{4}$ in head, equals interorbital; maxillary scarcely reaches $\frac{1}{2}$ in eye.

Scales 100 to 108 in lateral line; 21 or 22 above, 45 to 47 below. Lateral line with long arch, becomes straight below last $\frac{1}{4}$ of dorsal.

D. VIII or IX, 27 to 30, spines distinct, increase to last, soft rays increase in length to about tenth, then decrease, whole fin rounded; A. III, 21 to 24, rounded; caudal apparently emarginate; pectoral rounded; ventral reaches beyond anus, nearly equals head in young, shorter with age.

Pale yellowish brown, with purple tinge above, silvery below. Large blotches and bands of darker reddish brown, which extend on dorsal and anal, also on ventral and caudal.

804
Caudal with large brown spot at
base of each lobe. Length 90 mm.

(Regan.)

China, Australia, South Seas.

805
Inupus imperialis Cocco

Inupus imperialis Cocco, Giorn.
Sci. Lett. Sicilia, vol. 42, p. 20, 1833
(type locality, Messina).

on soft dorsal and anal. Ventral with broad terminal blackish border, fin otherwise with brownish and whitish narrow edge to front of first branched ray beyond tip of spine. In most cases spinous dorsal little darker than other fins, especially anteriorly.

Andamans, East Indies, Philippines.

Of our series from Camahala Bay 7 are males with the mouth cavity and pharynx crammed full of wa.

Centrolophus ovalis Cuvier, Hist.
 Nat. Poiss., vol. 9, p. 346, 1833 (type
 locality, here). — Günther, Cat. Fish.
 Brit. Mus., vol. 2, p. 404, 1860 (Madeira).
 — Vinciguerra, Atti Soc. Ital. Sci.
 Nat., vol. 34, p. 317, 1892 (Canaries).

Lirus ovalis Regan, Ann. Mag.
 Nat. Hist., ser. 7, vol. 10, p. 198,
 1902 (Atlantic; Mediterranean).
 — Hjort, The Depths of the Ocean,
 p. 613, 1912 (west of Canaries; Azores,
 3239 meters):

eye edge and another little more posterior. Iris pale yellowish to brownish or neutral gray. Predorsal and back with variable small scattered dark or dusky specks to spots. Oblique blackish brown band from front of spinous dorsal till midway in postventral space, but not extended below across belly, may be broken in places also of variable width. Side of tail with axial row of usually 4^{or 5} blackish spots, sometimes more or less connected, usually distinct. At caudal base arc of 4 black spots. Also other scattered blackish blotches on tail. Fins all very pale brownish, ^{dusky} brownish basal band or line

Centrolophus crassus Cuvier,
Hist. Nat. Poiss., vol. 9, p. 348,
1833 (type locality, "cinquante
lieues à l'ouest des Açores").

Leirus bennettii Lowe, ^{Proc. Conn. Zool. Soc. London, vol. 1, p. 143, 1833 (type locality, Madeira),} Trans. ^{locality, Madeira,} Cambridge Philos. Soc., vol. 6, p. 199,
pl. 5, ^{fig. 1-2} 1838 (Madeira); Trans. Zool. Soc. London, vol. 2, p. 179, 1837 (1841) (Madeira).

Crius bennettii Valenciennes,
Hist. Nat. Canaries, vol. 2, Poiss.,
pt. 2, p. 43, 1836-44 (Canaries).

Pompilus bennettii Lowe, Proc.
Zool. Soc. London, p. 82, 1839 (Madeira);
Trans. Zool. Soc. London, vol. 3,
p. 8, 1839 (1849) (Madeira).

Depth $1\frac{3}{4}$ to $1\frac{4}{5}$; head $2\frac{1}{4}$ to $2\frac{1}{3}$, width $1\frac{7}{8}$ to 2. Snout $3\frac{3}{4}$ to 4 in head from snout tip; eye $2\frac{3}{4}$ to 3, greater than snout or interorbital, maxillary reaches opposite eye center, expansion 2 in eye, length 2 to $2\frac{1}{10}$ in head; interorbital bands of villiform teeth in jaws, on vomer and palatines; interorbital $2\frac{1}{2}$ to $3\frac{3}{4}$, nearly level or only slightly convex; preopercle ridge entire, edge denticulate; preorbital entire. Gill rakers 5 + 20, lanceolate, little longer than gill filaments or $2\frac{1}{4}$ in eye.

Scales 23 in lateral line to caudal base and 3 more on latter, 2 above, 6 below, 6 predorsal, 2 rows on cheek.

Cruis berthelotii Valenciennes,
Hist. Nat. Canaries, vol. 1, Paris,
pt. 2, p. 45, pl. 9, fig. 6, 1836-44.
(type locality, Canary Islands).

Schedophilus berthelotii Günther,
Cat. Fish. Brit. Mus., vol. 2, p. 412,
1860 (no locality). — Vinciguerra,
Atti Soc. Ital. Sci. Nat., p. 318, 1892
(Madeira).

Centrolophus porosissimus
Camestrini, Mem. Accad. Sci.
Torino, vol. 20, p. 365, pl. 2, 1864.
(type locality, Nice).

Cruis berthelotii Valenciennes, Hist. Nat.
Canaries, vol. 1, Paris, pt. 2, p. 45, pl. 9, 1836-44.

Schedophilus botteri (Heckel)
Steindachner, Sitzs. Ber. Akad. Wiss.
Wien, math.-naturw. Kl., vol. 57, p. 379,
pl. 2, fig. 2, 1868 (type locality,
Barcelona; Lissina, Dalmatia).

Amia orbicularis Bleeker, Atlas Ichth.
Ind. Néerl., vol. 7, 1873-76, p. 79 (Sumatra,
Lias, Singapore, Java, Sangir, Ceram,
Amboina, Goram); vol. 8, 1876-77, pl.
(61) 339, fig. 1. — Seale and Bean, Proc.
U. S. Nat. Mus., vol. 33, 1907, p. 242

(Gambounga).

Apogon nigromaculatus Hambron and
Jaquinot, Voy. Astrolabe, Zool., vol. 3,
1853, p. 32, pl. 1, fig. 2. New Guinea. —

Günther, Cat. Fishes Brit. Mus., vol. 1,
1859, p. 233 (copied).

Amia nigromaculata Bleeker, Atlas
Ichth. Ind. Néerl., vol. 7, 1873-76, p. 80
(compiled).

809

7 Centrolophus rotundicauda
Costa, Ann. Mus. Zool. Napoli,
vol. 6, p. 81, pl. 1, 1866 (type
locality, Bay of Naples).

Lirus rotundicauda Regan,
Ann. Mag. Nat. Hist., ser. 7, vol. 10,
p. 201, 1902 (compiled).

15586, 15587, 23507 to 23511. Tulayan
Island, vicinity of Jolo. September 15,
1909. Length 63 to 75 mm.

23175 to 23177, 23278, 24016. Tutu Bay,
first anchorage, Jolo Island. September
19, 1909. Length 69 to 78 mm.

23762 and 23763. Daisy Island, west
of Bumbum, Somo. January 6, 1910.
Length 55 to 57 mm.

23898 and 23899. Pendek Island,
Buton Strait. December 15, 1909. Length
60 to 71 mm.

24030. Buba Island, Gulf of Tomini,
Celebes. November 20, 1909. Length 70 mm.

14396, 14936, 22728, 23907 to 23912, 23941 to 23942.

Talise Island. November 9, 1909. Length 63 to 82 mm. ^{25 examples}

? Centrolophus valenciennesi

Moreau, Poiss. France, vol. 2, p.
496, fig. 138, 1881 (type locality,
Marseilles).

Leuis valenciennesi Regan, Ann.

Mag. Nat. Hist., ser. 7, vol. 10, p.
200, 1902 (Mediterranean).

Leuis moseleyi Cunningham, Proc.

Zool. Soc. London, p. 95, pl. 51, 1910
(type locality, St. Helena).

Genus Boops Cuvier Ann 130

Boops Cuvier, Mém. Mus. Hist. Nat. Paris, vol. 1, 1815, p. 453. Type Sparus boops Linnaeus, tautotypic.

Boy Valenciennes, Hist. Nat. Poiss., vol. 6, 1830, p. 346. Type Boy vulgaris Valenciennes, designated by Jordan and Fowler, Rep. U. S. Fish Comm., pt. 17, 1891 (1893), p. 529.

Exocallus de la Pylaië, (Recherches en France, Poiss.) Congr. Sci. France, Poitiers, 1834, p. 522. Type Exocallus insignis de la Pylaië = Sparus boops Linnaeus, monotypic. Exocallus de la Pylaië proposed to replace Boops Cuvier.

Both jaws with single front series of broad incisors, each with notch at cutting edge. No molars. Intestinal canal elongate. Pyloric appendages 5. Scales moderate. Cheeks scaly. Dorsal spines 13 to 16, depressible within scaly basal sheaths. Anal spines 3.

Depth $2\frac{1}{2}$ to $2\frac{3}{4}$; head $3\frac{1}{3}$ to $3\frac{3}{4}$.

Snout $3\frac{4}{5}$ to $4\frac{2}{3}$ in head from snout tip; eye $3\frac{4}{5}$ to $4\frac{3}{4}$ subequal with snout; maxillary reaches $\frac{1}{3}$ in eye, expansion $2\frac{1}{4}$ in eye, length $2\frac{2}{3}$ in head from snout tip; interorbital $2\frac{2}{3}$ to 3, elevated. Lower gill rakers 16, long as gill filaments.

Scales 95 to 110 in lateral line; 14 to 16 above, 32 to 37 below. Lateral line concurrent with dorsal profile of back.

D. VI or VII, 29 to 33; A. III, 20 to 23; caudal deeply emarginate, equals head; pectoral nearly equals head, ventral half as long.

Greenish brown above, silvery below. Fins brown. Young with purplish lateral spots. Length 508 mm. (Lowe, Regan.)

Eastern Atlantic, Mediterranean.

Although admitted by Regan
Centrolophus rotundicauda Costa,
 based on an example 300 mm is
 said to differ from the present
 species chiefly in the form of
 its dorsal fin, which slopes
 up posteriorly to its last ray
 which longest and reaching
 opposite the caudal base.

Centrolophus valenciennesi Moreau
 is described with fewer dorsal
 (VIII, 21) and anal (III, 16) rays
 and few scales (75) in the
 lateral line.

813

Murpus peruanus (Steindachner).

Centrolophus peruanus Steindachner,
Sitzs. Ber. Akad. Wiss. Wien,
math.-naturw. Kl.; vol. 70, pt. 1,
p. 384, 1874 (type locality, Callao);
Fauna Chilensis, p. 299, 1898, —
J. F. Abbott, Proc. Acad. Nat. Sci.
Philadelphia, p. 347, 1899 (reference).

Levius peruanus Fordice, Proc. Acad.
Nat. Sci. Philadelphia, p. 417, 1884
(reference). — Evermann and
Radcliffe, Bull. U. S. Nat. Mus.,
no. 95, p. 63, 1917 (reference).

Levius peruanus Regan, Ann. Mag.
Nat. Hist., ser. 7, vol. 10, p. 200, 1902
(compiled).

23854 to 23856, 23920. Togian Bay,
Togian Island, Gulf of Tomini, Celebes.
November 19, 1909. Length 54 to 66 mm.

23606 to 23677. Gane Road, Gillolo
Island. December 1, 1909. Length 59 to 66 mm.

23309, 23310, 23697. Gomomo Island,
Pitt Passage. December 3, 1909. Length
68 to 75 mm.

814

Depth $3\frac{1}{4}$; head 3. Snout little longer than eye; eye 5; maxillary reaches below front eye edge; interorbital $2\frac{4}{5}$ to $3\frac{2}{5}$ in head.

Scales 80 to 90 in lateral line; 12 to 14 above, 24 to 30 below.

D. VIII or IX, 26 to 28, spines graduated to higher soft rays, soft fin highest anteriorly, longest rays $\frac{1}{3}$ to $\frac{2}{5}$ of head; A. III, 18, like soft dorsal; caudal truncate; pectoral falciform, long as head; ventral short, inserted behind pectoral.

Body above, dorsal and pectoral dark violet, below with anal and ventral golden, usually with small violet spots. Sometimes violet streaks extend down from ground color of back over sides.

Peru, Chili.

(Regan.)

815

Mypus paucidens (Günther)

Lirus paucidens Günther, Rep.
Voy. Challenger, vol. 31, no. 2, (1888)
(1889), p. 11, pl. 2, fig. E, (type
locality, From New Guinea to
Japan). — Regan, Ann. Mag. Nat.
Hist., ser. 7, vol. 10, p. 201, 1902 (types).

Schedophilus paucidens Fowler,
Mem. Bishop Mus., vol. 10, (1928),
p. 139, (compiled).

eye in young, length 3 to 3 3/5 in head; teeth about 36 to 38 in jaws, compressed, tricuspid, with smaller ones forming an inner band; interorbital 3 1/10 to 3 1/5, broadly convex; preopercle edge minutely denticulate. Gill rakers 12 + 23, lanceolate, 1 1/4 in gill filaments, which 1 1/2 in eye.

Scales 64 to 66 along above lateral line to caudal base; 58 to 60 tubular scales in lateral line to caudal base; 16 scales above, 21 below, 34 to 36 predorsal forward opposite front eye edge, 15 rows over cheek to preopercle ridge and often 3 or 4 more on flange. Scales with 13 to 21 basal radiating striae; 33 to 51 apical denticles, with 4 to 11 transverse series of basal elements.

D. XIV or XV, 15, I or 16, I, last spine

Depth 2 to $2\frac{1}{4}$; head $2\frac{1}{2}$. Snout 4 in head; eye 3, greater than snout, less than interorbital; maxillary reaches $\frac{2}{5}$ in eye, length $2\frac{2}{5}$ in head; interorbital rather high and steep.

Scales 100 in lateral line; 13 to 15 above, 34 to 36 below. Lateral line with long arch, complete, axial.

D. VII, 23 or 24, spines increase in length to third, rest subequal, soft fin much higher or fin height $2\frac{3}{5}$ in head; A. III, 19 to 21, fin height 2; caudal $1\frac{1}{3}$, slightly emarginate; least depth of caudal peduncle 3; pectoral $1\frac{1}{2}$, ventral $1\frac{2}{5}$.

Dark brown, pectorals and caudal white. Length 35 mm. (Günther, Regan.)

Western Pacific.

817

Murus perciformis (Mitchell)

Coryphaena perciformis Mitchell, Amer.
Monthly Mag. Crit. Rev., vol. 2, p. 244,
Feb. 1818 (Type locality, New York
Harbor).

Palinurus perciformis De Kay, New
York Fauna, vol. 3, p. 118, pl. 24,
1842.

Palinurichthys perciformis Gill,
Proc. Acad. Nat. Sci. Philadelphia,
p. 20, 1860 (Jan.) (reference). —
Jordan and Evermann, Bull. U.S.
Nat. Mus., no. 47, pt. 1, p. 964, 1896.

Pammelas perciformis Günther, Cat. Fish. Brit. Mus., vol. 2, p. 485, 1860 (copied).

Larus perciformis Jordan and Gilbert, Bull. U. S. Nat. Mus., no. 16, p. 452, 1882. — Regan, Ann. Mag. Nat. Hist., ser. 7, vol. 10, p. 202, 1902. — Hjort, The Depths of the Ocean, p. 613, 1912 (lat. 37° 7' N., long. 38° 34' W., west of Azores).

Pimelepterus cornubiensis Cornish, Zoologist, vol. 9, p. 4255, 1874 (type locality, Penzance, Cornwall, England).

Depth $2\frac{3}{5}$ to $2\frac{7}{8}$; head 3 to $3\frac{1}{3}$.
 Snout $3\frac{1}{4}$ to $4\frac{3}{4}$ in head; eye 4 to $4\frac{4}{5}$, 1 to $1\frac{1}{2}$ in snout; maxillary reaches $\frac{1}{5}$ in eye, expansion 2 to $2\frac{1}{5}$ in eye, length $2\frac{1}{2}$ to $2\frac{7}{8}$ in head; interorbital $2\frac{1}{2}$ to $3\frac{1}{4}$, convexly elevated; preopercle edge rather weakly denticulate. Gill rakers 5 to 8 + 16 or 17, lanceolate, $\frac{2}{3}$ to $\frac{3}{4}$ of eye.

Scales 85 to 92 in lateral line; 12 to 15 above, 24 to 30 below; 22 to 30 predorsal. Scales variably small along body edges. Vertical fins mostly covered with minute scales. Head naked. Lateral line concurrent with dorsal profile, median along side of caudal peduncle.

D. VI to VIII, II, 18 to 20, fourth branched ray 2 to 3 in head; A. III, I, 16 or 17, fourth ray 2 to $2\frac{1}{2}$;

Depth $3\frac{3}{5}$; head $2\frac{7}{8}$, width $2\frac{1}{5}$.

Snout $1\frac{3}{4}$ in head; eye $5\frac{3}{5}$, 3 in snout, $1\frac{3}{5}$ in interorbital; maxillary reaches $\frac{3}{5}$ in snout, expansion 1 in eye, length $2\frac{7}{8}$ in head; barbels reach opposite hind eye edge, length $1\frac{2}{5}$ in head; teeth 22 to 24 in jaws, conic, uniserial, none on palatines; interorbital 4 in head, convex. Gill rakers 7 + 24, lanceolate, $1\frac{3}{5}$ in gill filaments, which $1\frac{1}{8}$ in eye.

Scales 29 in lateral line to caudal base and 2 more on latter; 3 above, 6 below, 15 predorsal forward to front nostril; 4 rows below eye to lower preopercle edge. Tubes of lateral line with 8 to 10 tubules. Scales with 5 basal radiating striae; 124 apical denticles, with 4 transverse series of basal elements; circuli very fine.

caudal 1 to $1\frac{1}{8}$, deeply emarginate; least depth of caudal peduncle 2 to $2\frac{4}{5}$; pectoral $1\frac{1}{3}$ to $1\frac{2}{5}$; ventral $1\frac{2}{5}$ to $1\frac{1}{2}$.

Slaty black, indistinctly specked with blackish above, side and below dusky gray, sometimes tinged olive. Iris gray, broad orange circle around pupil. Head mostly dusky, especially lips and jaw. Fins blackish, membranes slaty. Rays of ventral, also front edge, slightly cream color.

Pelagic in the North Atlantic, abundant on the coast of the United States.

basal elements; circuli fine.

D. VII - I, 7, I, second spine $1\frac{3}{4}$ in head, second ray $2\frac{2}{3}$; A. I, 6, I, first branched ray $2\frac{2}{3}$; caudal $1\frac{1}{5}$, forked; least depth of caudal peduncle $2\frac{3}{5}$; pectoral $1\frac{1}{5}$; ventral $1\frac{2}{5}$.

Largely uniform light brown, paler to yellowish on under surfaces.

Iris gray brown. Fins all uniformly pale. Barbels pale yellowish brown.

China, Japan. Reported from Samar and Vill Real, Philippines, by Elera.

56396 U.S.N.M. Tokyo. Bureau of Fisheries. Length 175 mm.

U. S. P., Nos. 11200 and 11201.
Martha's Vineyard, Mass.
Dr. J. H. Slack.

to 39, spines like dorsal spines, eighth ray 2 to $2\frac{3}{5}$; caudal $2\frac{1}{3}$ to $2\frac{4}{5}$, deeply forked, lobes slender, sharply pointed, upper or lower longer; pectoral $2\frac{3}{4}$ to 3, rays 23 or 24; least depth of caudal peduncle $2\frac{2}{5}$ to 3 in head.

Back and upper surface of body mauve, becoming pale to silvery or milk white on under surfaces. Back, lower sides of head, breast and front of tail suffused with areas of dusky dots. Head above like back, sides and below silvery to milk white. Muzzle more or less translucent. Iris white and gray. Caudal with very dilute yellowish to ochraceous tints, vertical fins

Murpus porosus (Richardson)

Diagramma porosus Richardson,
Zool. Voy. Erebus and Terror,
Fish., p. 26, pl. 16, figs. 5-6, 1845
(type locality, "Coasts of Australia"
= New South Wales).

Hyperoglyphe porosa Günther, Cat.
Fish. Brit. Mus., vol. 1, p. 337, 1859
(no locality). — McCulloch, Austral.
Mus. Mem., no. 5, pt. 1, p. 125, June 29,
1929 (reference); Fishes New South
Wales, ed. 3, p. 42, pl. 16, fig. 154a,
1930 (record "unreliable").

pearly; behind black band numerous roundish spots of dark smoke gray size of pupil or less. Black bar across opercle edge; premaxillary and lower lip slate blue; dash of red on cheek. Iris with reddish golden and brown shades. Spinous dorsal with brownish shades, tips of first and second membranes with some red. Soft verticals and caudal snobby, with reddish shades. Pectoral hyaline pink. Ventral golden olive, tips of first 2 or 3 rays mottled with blood red.

15 examples. Tataan. February 20, 1908. Length 25 to 64 mm.

5 examples. Tataan. February 21, 1908. Length 42 to 62 mm.

Larus porosus Günther, Rep. Voy.
Challenger, vol. 31, pt. 2, p. 11, ~~1889~~
pl. 2, fig. 7, 1889 (near Kermadec
Islands). — Regan, Ann. Mag.
Nat. Hist., ser. 7, vol. 10, p. 202, 1902
(above material).

23313. Cammahala Bay, Ragay Gulf, Luzon. March 11, 1909. Length 46 to 95 mm. 66 examples.

8571. Cebu market. April 5, 1908. Length 68 mm.

2 examples. Cebu market. August 28, 1909. Length 55 to 58 mm.

3 examples. Mactan Reef. August 31, 1909. Length 36 to 50 mm.

1 example. Makinog, Camiguin Island, between Leyte and Mindanao. August 3, 1909. Length 56 mm.

2 examples. Reef opposite Cebu April 5, 1908. Length 16 to 23 mm.

19 examples. Reef opposite Cebu. April 7, 1908. Length 18 to 75 mm.

17 examples. San Pascual, Burias Island. March 8, 1909. Length 48 to 80 mm.

2 examples. Simaluc Island, north of Tawi Tawi. September 22, 1909. Length 46 mm.

Eurymetopus johnstonii Morton,
 Proc. Roy. Soc. Tasmania, p.
 77, pl., 1887 (1888) (type
 locality, Bridgewater, Tasmania).

— Waite, Trans. New Zealand
 Inst., vol. 44, p. 200, pl. 12, June
 1912 (Tasmania; Chatham Islands).

Hyperoglyphe johnstonii McCulloch,
 Zool. Res. Endeavour, vol. 2, pt. 3,
 p. 95, pl. 18, July 3, 1914 (Great
 Australian Bight, lat. $33^{\circ}18'S.$,
 long. $126^{\circ}42'E.$, in 130 to 170 fathoms);
 Austral. Mus. Mem., no. 5, pt. 1,
 p. 125, June 29, 1929 (reference).

19554 and 23404. Singaan Island,
between Jolo and Tawi Tawi. September
21, 1907. Length 74 to 78 mm.

24002. Vitanki Reef. September 24, 1909.
Length 62 mm.

11 examples. South lagoon, Tournindao
Island, Sulu Archipelago. February 26,
1908. Length 59 to 76 mm.

24090. Tataan, Simabuc Island.

February 19, 1908. Length ^{43 to} 64 mm. 8 examples.

[145.] Head and front part bronze green
with pearl reflections. Posterior parts
pearl black. Black band, including
spinous dorsal, vertically below
abdominal region; across body only
margins of scales black, centers

Depth $2\frac{1}{2}$ to 3; head 3 to $3\frac{1}{4}$.

Snout ~~3~~ to $4\frac{1}{5}$ in head from snout tip; eye 3 to 5, -greater than snout in young, subequal with age, less than interorbital; maxillary reaches $\frac{1}{2}$ to $\frac{3}{4}$ in eye, expansion $1\frac{3}{4}$ in eye, length 2 to $2\frac{1}{2}$ in head from snout tip; interorbital $2\frac{2}{3}$ to 3, well elevated.

Gill rakers 5+16,

Scales 84 to 100 in lateral line; 14 to 18 above, 30 to 34 below.

Opercles scaly, head otherwise largely naked. Vertical fins scaled. Lateral line axial, midway along side of tail.

D. VIII, I, 19 or 20, median spines longest or $1\frac{1}{4}$ to $1\frac{3}{4}$ in eye, first branched ray 3 in head; A. III, 15 or 16, first branched ray 3 to $3\frac{1}{8}$; caudal $1\frac{1}{3}$ to $1\frac{2}{5}$, emarginate; least depth

of caudal peduncle $4\frac{1}{5}$ to $4\frac{1}{2}$;
 pectoral 1 to $1\frac{1}{4}$, rays 20;
 ventral rays I, 5, fin $2\frac{1}{4}$ to $2\frac{3}{5}$
 in head.

Steel blue above, silvery
 beneath. Length ¹⁰⁷² 990 mm.

(Regan, Waite, McCulloch)

Great Australian Bight,
 Tasmania, New Zealand,
 Kermadec Islands. In the
 nominal Eurymetopos johnstonii
 Morton does not seem to show
 any differential characters
 except due to age I have included
 it in the synonymy.

~~Centrolophus japonicus~~ ^{Lehrer} ~~Steindachner~~
and ~~Döderlein~~

Centrolophus japonicus ^(Döderlein) Steindachner
and Döderlein, Denks. Akad. Wiss.
Wien, math.-naturw. Kl., vol. 49, pt. 1,
(1884) p. 183 ⁽¹⁸⁸⁵⁾ (type locality, Tokio).

— Jordan and Snyder, Annot. Zool.
Japan, vol. 3, 1901, p. 70 (reference).

— Jordan, Snyder, Tanaka, Journ.
College Sci. Tokio, vol. 33, 1913, p. 136
(reference).

Lirus japonicus Regan, Ann. Mag.
Nat. Hist., ser. 7, vol. 10, p. 201, 1902
(compiled).

Oxyerius japonicus Jordan and
H. abbs, Mem. Carnegie Mus., vol.
10, no. 2, p. 226, pl. 9, fig. 4, June 27,
1925 (Tokyo).

~~Centropomus japonicus~~

Amia orbicularis (Cuvier).

Apogon orbicularis (Kuhl and Van Hasselt)
Cuvier, Hist. Nat. Poiss., vol. 2, 1828, p.
 155. Java. — Günther, Cat. Fishes Brit.
 Mus., vol. 1, 1859, p. 233 (copied). — Day,
 Proc. Zool. Soc. London, 1870, p. 681 (Andamans).
 — Günther, Journ. Mus. Godeffroy, vol. 1,
 pt. 1, 1873, p. 22, pl. 20, fig. D (Radack
 Island). — Day, Fishes of India, pt. 1, 1875,
 p. 65, pl. 17, fig. 7 (Andamans). — Meyer,
 Ann. Soc. Españ. Hist. Nat. Madrid, vol. 14,
 1885, p. 12 (Manado, Celebes; Sangi;
 Manila Bay, Luzon; Cebu; Rubi, New-
 Guinea). — Day, Fauna Brit. India, vol.
 1, 1889, p. 500. — Weber, Siboga Exped.,
 vol. ⁵⁷ ~~65~~ ^{Fische,} 1913, p. 221 (Biaru). — Beaufort,
 Bijdr. Dierk. Amsterdam, 1913, p. 115
 (Majalibit Bay, Waigiu; Amboina?).

depth 3; head 3 to $3\frac{1}{3}$. Snout 4 to $4\frac{4}{5}$ in head; eye 3 to $4\frac{1}{5}$, greater than eye, equals or less than interorbital; maxillary reaches $\frac{1}{4}$ to $\frac{1}{2}$ in eye, length $3\frac{1}{4}$ in head; interorbital rather high; preopercle denticulated. Gill rakers 6 + 16, long, strong.

Scales 98 to 100 in longitudinal series, rather deciduous. Lateral line arched at first, becomes median on tail.

D. VII or VIII, 22 to 26, spines short and weak, subequal, soft dorsal height anteriorly 2 in head; A. III, 18 or 19, height anteriorly $2\frac{4}{5}$ in head; caudal 1, well forked, least depth of caudal peduncle 3; pectoral 1; ventral $2\frac{1}{4}$.

Gray brown, dark above, clear below. Length 420 mm. (Regan, Jordan and Hubbs.)

Japan.

Genus homeus Cuvier

homeus Cuvier, Règne Animal, vol. 2,
 (1817, p. 315.) (Type Gobius
granovii Gmelin, designated by
Jordan and Gilbert, Bull. U. S.
 Nat. Mus., no. 17, 1883, p. 449.)

Body elongated, compressed.
Head compressed, width half its
length, depressed little above.
Snout rather short, convex. Eye
little advanced. Mouth small,
narrow. Maxillary not quite
reaching eye. Teeth small,
uniserial and smaller ones on
vomer and palatines. Nostrils
together. Gill rakers lanceolate.
Pseudobranchiae large. Air bladder
present. Pyloric caeca numerous.
Vertebrae 26 + 25. Scales small,
cycloid. Lateral line complete,
high along back, falls median
to caudal base. First dorsal
of 10 or 11 spines. Anal with 3
rather strong connected spines.
Second dorsal and anal opposite,
long, similar, without finlets.
Caudal forked. Pectoral nearly
long as head. Ventral long, wide,

Shore fishes of moderate size in the Indo-Pacific, largely in the Indian Ocean and Western Pacific. Valued as food. They are distinguished from Dentex chiefly by the large scales on the cheek never in more than 3 rows. Bleeker's designation (Arch. Néerland. Sci. Nat. Harlem, vol. 11, 1876, p. 278) of Dentex vulgaris Cuvier = Sparus dentex Linnaeus as that species is not contained in Günther's Synagris. The following is largely tentative so that I suppress Anemura and Euthyopteroma.

Analysis of Species

- ✓ Synagris. □ Spinous dorsal edge entire, membranes not notched.
- b¹. Dorsal spines without elongated filaments (except in S. lateus).
- c¹. Body without dark transverse blotches.
- d¹. Body uniform rosy.
- e¹. Suborbital edge entire.
- f¹. Fins uniform rosy.
- 6. ems □ g¹. Dorsal rays 10, anal rays 8
- g². Dorsal rays 9, anal rays 7
- f¹. Dorsals with marginal yellow band.
- 7. ems □ h¹. Anal without yellow bands.
- 8. ems □ i¹. Dorsals without basal longitudinal band; suborbital depth 1/2 of eye
- 8. ems □ i². Dorsals with basal yellow longitudinal band; suborbital depth 2/3 of eye

hexodon
worcesteri

metopias

isacanthus

connected by wide membrane with belly, depressible in narrow groove of abdomen.

Small pelagic fishes of tropical seas, found usually below large 'Portuguese Man-of-war'; thus widely distributed.

Follow—Incl Caps

Greenish, more brownish on back and flanks, with brown marblings, cloudings, some grouped as vertical bands. On body also numerous indistinct longitudinal brown or blackish lines. Fins brown, without spots or bands. Length, 185 mm. ♂ (Sauvage.)

Reunion, Seychelles.

134789

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Genus SYNAGRIS Günther ← 1130

- ♂ Synagris GÜNTHER, Cat. Fish. Brit. Mus., vol. 1, (1859, p. 373. (Type, Dentex furcosus VALENCIENNES, designated by JORDAN, Genera of Fishes, pt. 3, (1919, p. 291.) (Not BLEEKER, 1875, which is inadmissible.)
- ♀ Anemura FOWLER, Journ. Acad. Nat. Sci. Philadelphia, ser. 2, vol. 12, (1904, p. 527. (Type, Dentex notatus DAY, orthotypic.)
- ♂ Odontoglyphis FOWLER, Journ. Acad. Nat. Sci. Philadelphia, ser. 2, vol. 12, (1904, p. 527. (Type, Dentex tolu VALENCIENNES, orthotypic.)
- ♂ Euthyopteroma FOWLER, Journ. Acad. Nat. Sci. Philadelphia, ser. 2, vol. 12, (1904, p. 527. (Type, Dentex bochii BLEEKER, orthotypic.)

Body elliptical, compressed. Head moderate. Mouth terminal, protractile, nearly horizontal, jaws equal. Maxillary mostly exposed, without supplemental bone. Outer row of conic and somewhat enlarged teeth and inner villiform band, at least anteriorly. Canines 3 or 4 pairs and moderately strong above, when present, below weak. Preorbital wide, smooth, naked. ~~Pre-orbital wide, smooth, naked.~~ Preopercle entire or weakly serrate. Opercular spine weak or absent. Branchiostegals 6. Air bladder notched behind. Pyloric coeca few. Scales moderate, adherent, ciliated. Gape, opercles and cheek with cycloid scales, on latter in but 3 series. Dorsal and anal scaleless. Lateral line complete, not on caudal, tubes simple. Dorsal with 10 spines, 9 rays and spines feeble, sometimes filamentous. Anal with 3 spines and 7 rays. Caudal deeply forked, upper ray sometimes filamentous. Pectoral rays 15 to 18, pointed. Ventral inserted below or behind pectoral base, with spine and 5 rays, outer sometimes produced.

Homens albula (Meuschen)

Gobius albula Meuschen, Ind.
 Zoophylac. Grönov., pt. 3, no. 278,
 1781 (on Gobius corpore etc.
Grönov, Zoophylacium, p. 82, no.
 278, 1763, type locality, America;
 nonbinomial).

Homens albula McCulloch, Austral.
 Mus. Mem., no. 5, pt. 1, p. 123, June
 29, 1929 (reference).

to dorsals and along bases¹¹⁴

of both fins. quadrifasciata

o.² No median dark line from
snout to dorsals and along bases
of both fins. kiensis

h.⁶ Single dark or blackish
median band from snout to eye;
tail with round dark or black
spot.

p.¹ First dorsal with transverse
yellow bands; second dorsal
rose, spotted brown and pearly.

h.² First dorsal without transverse
yellow bands; second dorsal
without spots. halloptera

qf.¹ Dark caudal spot above end
of dark lateral band. exostigma

qf.² Dark caudal spot median
or at end of dark lateral band.
fraenata

Gobius granovii Gmelin, Systema
Nat. Linn., pt. 1, (1789) p. 1205, (type
locality, American seas in Torrid
zone).

Gobionorus granovii Lacépède,
Hist. Nat. Poiss., vol. 2, pp. 583, 584,
1800 (copied).

edge; 5 irregular rows across cheek to preopercle ridge, flange broadly naked; fins all finely scaly except ventrals; opercles naked, also muzzle and all front of head.

D. XVI, 12, seventh spine 2 in head, first ray $1\frac{2}{3}$; A. III, 10, third spine $2\frac{2}{5}$, third ray $1\frac{1}{9}$; least depth of caudal peduncle 2; pectoral 1; ventral 1; caudal $3\frac{2}{5}$ in combined head and body to caudal base, hind edge little concave, lobes rounded.

Uniform dark brownish gray. Pectoral and dorsal fins somewhat lighter.

Length 159 mm. (Mc Culloch.)

Kermadec Islands. The fimbriate nostrils and biserial teeth distinguish this species from Girella nebulosa.

Homarus gronovii Günther, Cat.

Fish. Brit. Mus., vol. 2, (1860) p. 387, (South America, South Atlantic, Australia); Rep. Voy.

Challenger, vol. 1, pt. 6, (1880) p. 9,

(Bermuda). — Goode, Amer.

Journ. Sci. Arts, ser. , vol. ,

(1880) p. (Bermuda). —

Günther, Rep. Voy. Challenger, vol.

31, pt. 2, (1888 (1889)) p. 13, (Low

Archipelago). — Goode and Bean,

Oceanic Ichth. (1895) p. 220, pl. 63,

fig. 227, (Florida). — Regan, Ann.

Mag. Nat. Hist., ser. 7, vol. 10, p. 122,

1902 (note).

— Fowler, Ocean. Pap. Bishop Mus.,

vol. 8, no. 7, (1923) p. 378, (Laike, Oahu);

Proc. Acad. Nat. Sci. Philadelphia,

vol. 77, (1925) p. 212, (Katal coast);

Mem. Bishop Mus., vol. 10, (1928)

p. 138, (Malakakana, Oahu; h. lat.

6° W. long. 162°).

over 129

795

Girella fimbriata (McCulloch)

Girellops fimbriatus McCulloch, Records
Australian Mus., vol. 13, no. 2, July 20,
1920, p. 66, pl. 13, fig. 2. Kermadec
Islands.

Depth $2\frac{2}{5}$; head $3\frac{3}{4}$. Snout $2\frac{3}{4}$
in head; eye $3\frac{4}{5}$, $1\frac{2}{5}$ in snout, $1\frac{1}{3}$
in interorbital; lower jaw little
shorter than upper; maxillary reaches
eye, length $3\frac{1}{4}$ in head; outer teeth
uniserial, edges truncate or for 2
laterals bicuspid or tricuspid, 12
in each jaw of uniform size; inner
teeth minute, spaced, pointed, mostly
uniserial; interorbital little less
than snout, convex; preopercle edge entire.

Scales 86 along above lateral line
to caudal base, 71 along below; 13
scales above, 20 below; predorsal
scales forward opposite hind eye

— Gilchrist and Von Bonde, Fishes.
Marine Biol. Serv. South Africa,
Rep. No. 3, No. 4, p. 6, 1922 (1924)
(False Bay).

— Barnard, Ann. South African
Mus., vol. 21, pt. 2, p. 890, Oct. 1927
(Cape Point; False Bay; Natal).

peduncle 3 to 3 1/2; pectoral 1 1/5 to 2 4/5;
ventral 1 1/3 to 1 1/2; caudal 3 in
combined head and trunk with age,
or 1 1/8 in head in young.

Brown above, paler below, with
silvery tints. Sides with 7 transverse
dark brown bands, alternating as
many more similar parallel paler ones.
Dusky saddle on caudal peduncle
above and on sides. Hind caudal
edge dusky. Dorsals and anals
dusky marginally. Front ventral
rays dusky.

Mediterranean, Canaries, South Africa.
According to Barnard reaches 700 mm.

12461 & 12468

~~12461 & 12468~~ A. N. S. P. Mediterranean.

C. L. Bonaparte. Length 55 to 115 mm.

Eleotris mauritii Schneider, Syst.
Ichth. Bloch, (1801) p. 66 (type
locality, Seas of Brazil).

Homarus mauritii ^{Cuvier} ~~Valenciennes~~, Hist.
Nat. Poiss., vol. 9, (1833) p. 243, ~~14~~ (Guinea).
* — Richardson, Ichth.
China and Japan, 1846, p. 272 (Sea of China),
— Günther, Cat. Fish. Brit. Mus.,
vol. 2, (1860) p. 387.

~~Eleo~~

darker. Usually a dull transverse bar across pectoral base.

~~Formosa, Riu Kiu, Japan.~~

~~71908 U.S.N.M. Misaki, Sagami, Japan. Albatross Collection 1906. Length 75 mm.~~

~~71555 U.S.N.M. Kafa, Okinawa. Albatross Collection 1906. Length 73 to 160 mm. 2 examples.~~

~~71918 U.S.N.M. Kafa, Okinawa. Albatross Collection. Length 149 mm.~~

Homarus maculosus Bennett, Proc.
Zool. Soc. London, (1831) p. 146,
(type locality, Atlantic Coast of
North Africa).

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eye in young, to eye with age, length $2\frac{7}{8}$ to 3 in head; teeth with outer row of spatulate tricuspid incisors, followed by inner broad band of smaller ones; interorbital $2\frac{7}{8}$ to $3\frac{1}{5}$, broadly convex; preopercle edge minutely denticulate. Gill rakers $13 + 24$, lanceolate, $1\frac{3}{4}$ in gill filaments, which $1\frac{1}{4}$ in eye.

Scales 50 to 52 along lateral line to caudal base; 46 to 48 tubular scales in lateral line to caudal base; 9 scales above, 18 or 19 below, 24 to 26 predorsal forward opposite front pupil edge; 14 or 15 rows over cheek to preopercle ridge with 4 or 5 more on preopercle flange. Scales with 14 to 18 basal radiating striae, 32 to 61 slender, short, apical denticles, with 4 to 8 transverse series of basal

Seriola argyromelas Valenciennes,
Hist. Nat. Poiss., vol. 9, 1833, pl. 262.

Homarus peronii ^{Cuvier} ~~Valenciennes~~, Hist. Nat.
Poiss., vol. 9, 1833, p. 247 (type locality,
Sea of Java)

Homarus oxyurus Poey, Mem. Hist.
Nat. Cuba, vol. 2, 1860, p. 236 (type
locality, Havana).

Homarus maculatus Valenciennes,
Règne Animal, Cuvier, Ed. Ill., 1839,
pl. 56, fig. 2 (type locality, Inter-
tropical sea of the Indies).

elements; circuli very fine.

D. XIV, 14, I, last spine 2 to 2 $\frac{1}{8}$ in head, first ray 1 $\frac{4}{5}$ to 1 $\frac{7}{8}$; A. III, 11, I, third spine 2 $\frac{1}{10}$ to 2 $\frac{1}{8}$, first ray 1 $\frac{1}{4}$ to 1 $\frac{3}{5}$; least depth of caudal peduncle 1 $\frac{7}{8}$ to 2 $\frac{1}{10}$; pectoral 1 $\frac{1}{8}$ to 1 $\frac{1}{5}$; ventral 1 $\frac{1}{5}$ to 1 $\frac{1}{4}$; caudal 3 to 3 $\frac{3}{5}$ in combined head and body to caudal base.

Largely uniform dusky brown, scarcely paler on under surface. Usually distinct whitish transverse band, 2 or 3 scales in width, from eighth or ninth dorsal spines to vent, variably incomplete below lateral line and band indistinct or obliterated largely with age. Iris brown or gray. Fins all dusky brown. Small examples sometimes show soft dorsal membranes mottled

Depth $2\frac{2}{5}$ to $4\frac{1}{5}$; head $3\frac{1}{4}$ to $3\frac{4}{5}$, width 2 to $2\frac{1}{4}$. Snout $3\frac{1}{2}$ to $4\frac{1}{2}$ in head; eye 3 to 4, greater than snout in young to 2 in snout with age, 1 to $1\frac{1}{3}$ in interorbital; maxillary nearly or quite reaches eye in young, shorter with age, expansion 3 to $3\frac{2}{5}$ in eye, length $3\frac{2}{5}$ to $3\frac{7}{8}$ in head; interorbital $3\frac{1}{3}$ to 4, convexly elevated. Gill rakers 7 to 10 + 13 to 16, $2\frac{1}{2}$ in gill filaments, which $1\frac{1}{3}$ in eye.

Scales 47 to 65 in lateral line to caudal base and 4 or 5 more on latter; 4 or 5 above, 15 to 18 below, 25 to 30 predorsal. Scales with 3 basal radiating striae, edge lobed; circuli 20, complete.

D. X or XI, III, 20, I to 25, I, first fourth spine $2\frac{1}{5}$ to $2\frac{2}{5}$ in head, first branched ray 2 to

Follow—Incl Caps
Leaded

D. X, 10, third spine $3\frac{1}{3}$ in head, last spine $3\frac{1}{3}$, fourth ray $2\frac{1}{8}$;
A. III, 10, third spine $3\frac{1}{4}$, first ray $2\frac{2}{5}$; caudal $1\frac{1}{10}$, emarginate, lobes
pointed; least depth of caudal peduncle $2\frac{3}{4}$; pectoral $1\frac{2}{5}$; ventral $1\frac{1}{2}$.

Grayish silvery, each scale with dark spot forming in scale rows
longitudinal series. Length, 500 mm. (Sauvage.)

Bourbon, Reunion.

134789

156

Pentapodus curtus (Guichenot) ~~1129~~

Pentapodus curtus GUICHENOT, Notes Ile Réunion, vol. 2, (1862, p. 5 (25),
(Réunion Island). - PLAYFAIR, Fishes of Zanzibar, (1866, p. 31 (Zanzibar).
- SAUVAGE, Hist. Nat. Madagascar, Poiss., (1891, p. 183, pl. 13, fig.
2-2a (type). - REGAN, Trans. Linn. Soc. London, (ser. 2, vol. 12 (Zool.),
May 1908, p. 227 (Amirante, Seychelles, 30 to 80 fathoms).

type
country:

col. pure

Depth $2\frac{1}{2}$; head $3\frac{1}{3}$. Snout 3 in head; eye $2\frac{7}{8}$, subequal with
snout; maxillary reaches $\frac{2}{3}$ to eye, expansion $\frac{1}{3}$ in eye, length $3\frac{4}{5}$ in head;
(teeth 8 above and 9 below shown as single row in each jaw, anterior little
larger); interorbital moderately low; preopercle edge entire; suborbital depth
 $1\frac{1}{2}$ in eye.

Scales 42 in lateral line to caudal base and 3 more on latter; 6
above, 16 below, 10 predorsal forward opposite hind eye edge, 5 rows of small
scales on cheek with broad naked preopercle flange.

D. X, 11 (10 in description), fourth spine $2\frac{1}{2}$ in head, last spine
 $3\frac{1}{4}$, fourth ray $2\frac{1}{4}$; A. III, 10, third spine $3\frac{7}{8}$, fourth ray $3\frac{1}{3}$; caudal 1,
deeply emarginate, lobes pointed; least depth of caudal peduncle $2\frac{4}{5}$; pectoral
 $1\frac{1}{8}$; ventral $1\frac{2}{5}$.

lit

$2\frac{3}{5}$; A. III, 15, I to 25, I, first branched ray $2\frac{3}{5}$ to $3\frac{1}{3}$; caudal 1 to $1\frac{1}{8}$, well forked; least depth of caudal peduncle $3\frac{1}{2}$ to 4; ventral 1 to $1\frac{1}{6}$; pectoral subequal with head or $3\frac{1}{2}$ in fish without caudal.

Back and head above olivaceous or dark brown. Sides and lower surface silvery white. Sides with 5 to 7 variable dark to blackish vertical bands or blotches. Few dark blotches on under surface of head. Spinous dorsal black. Soft dorsal whitish with 3 blackish blotches or transverse bands. Anal whitish, with 3 narrow or smaller blackish spots. Caudal with blackish blotch at base of each lobe also median part of each lobe may be blackish. Pectoral with median lengthwise

Loaded

Follow - Incl Caps

134789

155

PSILOPENTAPUS, new Subgenus

1)

170

Type. Pentapus dux Valenciennes.

Diagnosis. Known by the restricted predorsal scales, these extending forward only so far as the eyes. Canines little developed. Preopercle edge entire and flange naked.

Greek

2.

G-Ft. footnote

ψιλός, bald; Pentapus; with reference to the naked forehead.

Pentapodus dux (Valenciennes)

Pentapus dux VALENCIENNES, Compt. Rend. Acad. Sci. Paris, vol. 54, 1862, p. 1203.

(Bourbon). - GUICHENOT, Notes Ile Réunion, vol. 2, 1862, p. 25.

SAUVAGE, Hist. Nat. Madagascar, Poiss., 1891, p. 184, pl. 22, figs. 3-3a (type).

Depth $2\frac{7}{8}$; head $3\frac{1}{5}$. Snout $2\frac{1}{4}$ in head; eye 3 (description gives $3\frac{1}{2}$), $1\frac{1}{5}$? in snout; maxillary reaches $\frac{3}{4}$? to eye, length $3\frac{1}{4}$ in head; maxillary edge not denticulate (figure shows only 2 teeth anteriorly and very small one above; lower jaw shown with 7 equally large conic teeth); interorbital low; preopercle entire; suborbital depth $\frac{9}{10}$ eye; apparently no opercular spine.

Scales 52 in lateral line (45 shown on figure to caudal base and 5 more on latter); 6 above, 17 below (13 on figure above anal origin), 10 predorsal extending forward opposite hind eye edge, cheek with 9 narrowly imbricated rows of scales, preopercle flange broadly naked; 4 rows of postocular scales.

type locality

holotype

p. 1703

842
blackish streaks. Ventral mostly
black, outer portions pale.

Pelagic in the tropical Pacific,
Indian and Atlantic Oceans.

A. N. S. P., no. 24341. Biscayne
Bay, Florida. James Spear.

A. N. S. P., one example. Natal
Coast. 1922. H. W. Bell Marley.
Length 73 mm.

- 14176, 19687. * Santa Cruz Island, Marinduque. □ April 24, 1908. Length, 113 to
□ 125 mm. *carry*
9779. * Siasi market. February 17, 1908. Length, 156 mm.
- 17830 ~~17831~~, 17834. * Simulac Island, Tataan. February 19, 1908. Length, 190
□ to 195 mm.
- 4709, D. 5113. * Sombrero Island, S. 7° W., 9.50 miles (13° 51' 30" N., 120°
□ 50' 30" E.), Luzon. January 16, 1908. Length, 238 mm. *lat. long.*
7475. * Tataan, Simulac Island. February 20, 1908. Length, 76 mm.
18916. Tictuan Island. September 8, 1908. Length, 173 mm.
16393. Ulugan Bay, channel near Oyster Inlet. December 28, 1908. Length,
□ 190 mm.
- here* — 20690, 20692. * Ulugan Bay near mouth Banieli River. December 28, 1908. Length,
□ 98 to 120 mm.
15437. * Ulugan Bay near Rita Island. December 29, 1908. Length, 133 mm.
5131. Usada Island. Pangaturan Group, near Jolo. March 5, 1908. Length,
□ 270 mm.
- 13078, 13079, 13241 to 13253. * Macassar market, Celebes, Dutch East Indies.
□ December 24, 1909. Length, 147 to 193 mm.
18264. Tomahu Island. December 11, 1909. Length, 197 mm.
- 13028, 13260. Gase Road, Gillolo Island. December 1, 1909. Length, 183 to
230 mm.
- No.* 30672 U.S.N.M. * New Guinea. Australian Museum. Length, 108 to 110 mm. Both
with dark bar across ventral base. As Pentapus bifasciatus Fowler.

Genus Icticus Jordan and Thompson

Icticus Jordan and Thompson,
Mem. Carnegie Mus., vol. 6, no. 4,
p. 242, Sep. 1914. (Type Icticus
ischamus Jordan and Thompson,
monotypic.)

Body oblong compressed, tissues soft. Head moderate, sides and dorsal surface flat. Snout blunt. Eye little advanced from middle in head length. Maxillary short, not reaching eye, concealed by preorbital. Jaws equal. Teeth uniserial in each jaw, some on vomer and palatines, and fine loose teeth on upper pharyngeals. Gill openings wide, free from isthmus. Gills 4, slit behind fourth. Pseudobranchiae large. Air bladder small. Branchi-

osteogals 6. Scales cycloid, very small. Lateral line high, slopes high along side of caudal peduncle to middle of caudal base.

First dorsal half long as second, equally high. Anal like second dorsal, opposite. Caudal forked, Pectoral short. Ventral moderate, close behind pectoral base.

One species.

Icticus ischanus Jordan and Thompson

Icticus ischanus Jordan and Thompson, Mem. Carnegie Mus., vol. 6, no. 4, p. 242, pl. 27, fig. 4, Sep. 1914 (type locality, Okinawa, Riu Kiu Islands).

Depth $3\frac{4}{5}$; head $3\frac{2}{5}$. Snout $3\frac{1}{8}$ in head; eye $5\frac{1}{8}$, $1\frac{1}{2}$ in snout; maxillary reaches $\frac{3}{4}$ to eye, concealed; upper teeth wide set, irregular, lacking posteriorly; lower teeth close set, cardiform, somewhat arrow shaped, with fine antorse serrations on each edge; interorbital high.

Scales 125 in lateral line; 10 above. Scales on cheek, opercle, pectoral and caudal bases (not shown on dorsals or anals).

D. XII, 30, third spine $3\frac{1}{10}$ in head, third ray $3\frac{1}{5}$; A. 30, third ray $4\frac{1}{4}$; caudal $1\frac{1}{3}$, well forked; least depth of caudal peduncle 4; pectoral $1\frac{7}{8}$, rays 19; ventral 2 in head.

m. Dark horizontal bands cross upper part of eye, below lateral line between second and third broad dark bands and reach opposite soft dorsal.

robusta

l. Caudal base without round black spot.

m. Eye small, equals snout, $3\frac{1}{2}$ in head; body deep; second black longitudinal band merges with third on straight part of lateral line, fourth and fifth indistinct, former crossing side above pectoral base.

fasciata

m. Eye larger, less than $3\frac{1}{2}$ in head and longer than snout; body relatively slender.

n. Dark bands wider than light interspaces, 3 upper very dark, 2 converging to meet median

Uniformly dark, iris black.
Peritoneum and lining of mouth
cavity black. Length 245 mm.
(Jordan and Thompson.)

Rui Kiu.

111
i.¹ Six golden longitudinal bands
on blue ground color; no dark
caudal spot. cyanosoma

i.² Body with dusky or blackish
longitudinal bands.

j.¹ Body with 18 to 20 blackish
longitudinal bands (7 to 10 in
young). multitaeniata

j.² Body with 5 or 6 blackish
longitudinal bands.

k.¹ Body with 6 blackish longitudinal
bands. endepataenia

k.² Body with 5 blackish longitudinal
bands.

l.¹ Caudal base with distinct round
black spot. angustata

mirrored short dark horizontal band
from across eyes above extending
back below head and thin
brown dark band. angustata

847

Genus Cubiceps Lowe

Cubiceps Lowe, Proc. Zool. Soc. London,
(1843, p. 82) (Type Periola gracilis
Lowe, monotypic.)

Atimostoma A. Smith, Illustrat.
Zool. South Africa, Fish, (1845) pl.
24, (Type Atimostoma capense
A. Smith, monotypic.)

Navarchus Filippi and Varany,
Mem. Acc. Sci. Torino, ser. 2,
vol. 18, (1860, p. 7) (Type Navarchus
sulcatus Filippi and Varany,
monotypic.)

Trachelocirrus Dornet, Rév. Mag.
Zool., vol. 15, (1863, p. 212, pl. 15,
Type Trachelocirrus mediterraneus
Dornet, monotypic.)

The imperfectly described Gerres
carinatus Alleyne and Macleay, based
on 2 examples about 75 mm. long may
be this species, though is described
with larger scales:

Depth 3; head 3. Eye $2\frac{3}{5}$ in head,
greater than snout. Maxillary reaches $\frac{1}{5}$
in eye, length $2\frac{3}{4}$ in head. Lateral
line 35. D. IX, 10; A. III, 7 (figure
shows II, 8). Pectoral little longer than
caudal or 3 in combined head and body
to caudal base. Bright silvery, with
numerous black spots irregularly disposed
over the back and sides. Fins pale.
Dorsal lightly tipped with black. Tail
(caudal) with brownish basal mark.

hulichthys Lloyd, Mem. Indian
Mus., vol. 2, No. 3, p. 156, 1909 (1909-10).

(Type hulichthys squamiceps
Lloyd, monotypic.)

While not certain of the identification of the Japanese with the Indian species, I feel it best to follow Schlegel until Pseudotolithus mitsukurii Jordan and Snyder can be established as a valid species. The alleged character of distinction by Jordan and Thompson that "the anal spine is much larger" is hardly satisfactory. Concerning Johnius mitsukurii and Johnius albiflorus Jordan and Thompson ^{say} state "In fact except for the differences in the dark streaks along the rows of scales there is little difference between the two species."

44893 U. S. N. M. Japan. Government of Japan. Length 295? to 300? mm. 2 examples. Though Jordan and Thompson stated in 1911 that "the specimens examined by us *** being the

849

Body oblong or elongately fusiform, compressed. Head moderate or long. Snout short, obtuse. Eye little advanced in head. Mouth small. Maxillary concealed. Teeth on vomer and tongue in young, none on palatines. Nostrils small, together. Preopercle edge entire. Oesophagus with longitudinal plications. Vertebrae 33. Coracoids form long symphysis so thorax appears cultrate. Scales deciduous, little enlarged usually on sides of breast. Second dorsal, anal and caudal bases scaly. Lateral line concurrent with dorsal profile. Dorsal spines 10 or 11, slender, high as soft dorsal, its rays 14 to 23. Anal spines 3, rays 14 to 20. Caudal deeply forked. Pectoral very long. Ventral moderate, inserted behind pectorals.

Analysis of Species

a¹ D. ^{VI, I,} 20 to 23; A. ^{III,} 19 to 21.

b¹ Depth 4 to 4 1/2; breast scales ^{enlarged.} gracilis.

b² Depth 3 to 3 4/5; breast scales not enlarged.

c¹ Premaxillary concealed by preorbital when mouth closed; scales 62 to 66 in lateral line.

d¹ Caudal peduncle twice long as deep. capensis.

d² Caudal peduncle nearly deep as long. boxteri.

c² ^{scales 62; dorsal rays 23.} Premaxillary not entirely concealed by preorbital when mouth closes; scales 52 in lateral line. caeruleus.

a² D. X or XI, I, 14 to 17; A. III, 14 or 15.

f¹ Pectoral longer than head. pauciradiatus.

f² Pectoral much shorter than head. brevimanus.

Cubiceps gracilis (Lowe)

851

Seriola gracilis Lowe, Proc. Zool.
Soc. London, vol. 11, (1843), p. 82,
(type locality, Madeira).

Cubiceps gracilis Günther, Cat.
Fish. Brit. Mus., vol. 2, (1860), p.
389 (copied); Rep. Voy. Challenger,
vol. 31, (1889), p. 11, pl. 2, figs. A-C,
(between Teneriffe and St. Thomas,
West Indies; Madeira; Messina;
near Azores). — Regan, Ann.
Mag. Nat. Hist., ser. 7, vol. 10, p. 123,
1902 (Mediterranean; Madeira).

22597. Canmahala Bay, Ragay Gulf,
Luzon. March 11, 1909. Length 67 mm.

1 example. Mansalay, Mindoro. June 4,
1908. Length 80 mm.

16 examples. Hogas Point, Panay.
February 4, 1908. Length 91 to 108 mm.

1 example. Pandanon Island. March 24,
1909. Length 33 mm.

3 examples. Romblon. March 26, 1908.
Length 36 to 43 mm.

52446 U.S.N.M. Apia, Samoa. Bureau
of Fisheries (04797). Length 287 mm.

Pararchus sulcatus Filippi and
Varany, Mem. Acc. Sci. Torino, ser.
2, vol. 18, p. 7, 1860 (type locality,

Trachelocircus mediterraneus
Doumet, Riv. Mag. Zool., vol. 15, p.
212, pl. 15, 1863 (type locality,
Cette).

6 below, ^{check with 2 rows of scales;}
~~unpaired basal scales~~ scales on
 middle of side all narrowly
 imbricated, ^{scales with} 8 basal radiating striae;
 45 to 69 apical denticles, with 1 or 2
 transverse series of basal elements; ~~and~~
 circuli fine.

D. VIII - I, 9, I, third spine 2 to $2\frac{1}{5}$ in
 total head length, third ray $1\frac{2}{3}$ to 2;
 A. II, 8, I, second spine $3\frac{1}{2}$ to 4, second
 ray $1\frac{7}{8}$ to 2; caudal $1\frac{2}{5}$ to $1\frac{7}{8}$, slightly
 rounded behind; least depth of
 caudal peduncle $2\frac{1}{2}$ to $2\frac{4}{5}$; pectoral
 $1\frac{2}{3}$ to $1\frac{4}{5}$; ventral $1\frac{2}{3}$ to $1\frac{4}{5}$.

Light brown, much paler on under
 surface of head and abdomen. Most
 everywhere mottled or dusted with
 darker brown. Obscure dark postocular
 streak from eye toward pectoral base.
 Many examples variably show dark

Depth $3\frac{1}{4}$ to $4\frac{3}{4}$; head 3 to $3\frac{1}{3}$.
 Snout $4\frac{3}{4}$ to $5\frac{1}{8}$ in head; eye $3\frac{1}{2}$
 to $4\frac{1}{5}$, little greater than snout;
 maxillary reaches eye, length
 $3\frac{2}{5}$ to $4\frac{1}{2}$ in head; interorbital
 low.

Scales 58 to 66 in lateral line;
 4 above, 16 to 19 below; deciduous;
 enlarged on chest and breast or
 below pectoral base. Head with
 rather large, obscure scales.
 Lateral line high, concurrent
 with back, above middle or side
 of caudal peduncle.

D. XI, I, 20 to 22, fourth and
 fifth spines longest, $2\frac{3}{4}$ in head,
 first ray $3\frac{1}{5}$; A. II or III, 19 to 21,
 first ray $2\frac{3}{4}$; caudal I, $1\frac{1}{6}$, deeply
 forked; least depth of caudal
 peduncle 4; pectoral rays III, 15,
 reaches half way to caudal, length
 $2\frac{7}{8}$ in fish without caudal;

ventral I, 5, length $2\frac{2}{5}$ in head,
inserted behind pectoral base.

Back and side brownish
purple, light red in very young,
silvery below. Length 195 mm.
(Günther, Regan.)

Eastern Atlantic, Mediterranean.

U.S.N.M., no. 35636. Lat. $36^{\circ}05'$ ~~W~~
~~lat~~ N., long. $69^{\circ}61'$ W. Albatross
Collection (160a). June 27, 1885.
Length 95 mm.

853

Cubiceps capensis (Andrew Smith)

Actinostoma capensis Andrew Smith,
Illustrat. Zool. South Africa, Fish,
(1845), pl. 24, (type locality ⁴, Beach
to the northward of Cape Town).

Cubiceps capensis Günther, Cat.
Fish. Brit. Mus., vol. 2, (1860) p. 389,
(type). — Regan, Ann. Mag. Nat.
Hist., ser. 7, vol. 10, p. 123, 1903
(type) — Gilchrist and Van Bende,
Fishes, Mar. Biol. Surv. South
Africa, ^{Special} Rep. no. 3, no. 4, p. 7, 1922 (1924)
(copied). — Barnard, Ann. South
African Mus., vol. 21, pt. 2, p. 891,
Oct. 1927 (compiled).

Centrolophus paucidentis (Günther)

Sirus paucidentis Günther, Rep. Voy.
Challenger, vol. 1, 1889, p. 11, pl. 2,
fig. 5 (type locality, between New
Guinea and Japan).

Depth $3\frac{4}{5}$; head 4. Snout $4\frac{2}{3}$ in head; eye 4, greater than snout (no adipose lids described or shown on figure); maxillary reaches $\frac{4}{5}$ in snout, length $4\frac{4}{5}$ in head; interorbital moderately high.

Scales 66 in lateral line; 6 above, 22 below. Small scales on side of head.

D. IV, I, 20, second spine $2\frac{1}{10}$ in head, first branched ray $1\frac{9}{10}$; A. III, 20, first branched ray 2; caudal $1\frac{3}{5}$, emarginate; least depth of caudal peduncle $3\frac{1}{3}$; pectoral $3\frac{1}{5}$ in fish without caudal, rays II, 22; ventral fin $2\frac{1}{2}$ in head.

Yellowish brown above, light purplish brown below. Fins reddish brown. Length 1093 mm.

(Andrew Smith, Regan.)

South Africa.

857

Cubiceps baxteri McCulloch

Cubiceps baxteri McCulloch, Rec.
Austral. Mus., vol. 14, No. 1, p. 15,
pl. 1, fig. 4, Feb. 28, 1923 (type
locality, Lord Howe Island).

Depth $3\frac{2}{3}$; head $3\frac{1}{5}$.

Snout $3\frac{4}{5}$ in head; eye $3\frac{2}{3}$,
slightly greater than snout
slightly less than ^{without adipose} interorbital;
maxillary not reaching eye;
single row of small, somewhat
curved, cardiform teeth in jaws;
small patch of similar teeth on
front part of vomer, from
which single row extends back
along median line of palate; short
row of teeth on each palatine;
tongue smooth, broadly rounded;
interorbital $3\frac{1}{5}$ in head, convex.

Lower gill rakers 18, little less than $\frac{1}{3}$ of eye.

Scales 62 in lateral line; 5 above, 21 below. Scales thin, cycloid, ~~uniform~~, also on bases of dorsal and anal.

~~Lateral~~ Scales on breast, chest and below pectoral bases mostly size of those on sides of body. Lateral line high, little more arched than dorsal profile.

D. VI, 23, third spine $2\frac{1}{3}$ in head, third dorsal ray $4\frac{1}{6}$; A. III, 21, third ray $3\frac{3}{5}$; least depth of caudal peduncle 3; ventral $2\frac{1}{3}$, rays I, 5; pectoral rays 23, fin reaches $1\frac{3}{4}$ to caudal base, length $2\frac{2}{3}$ in fish without caudal.

Dark brown, vertical fins and ventrals blackish, pectorals lighter. Length 371 mm. without ^{tail} (McCulloch.)
Lord Howe Island.

Cubiceps squamiceps (Lloyd)

Mullichthys squamiceps Lloyd,

New Indian Mus., vol. 2, no. 3, p.

158, pl. 17, fig. 4, 1909 (1909-10)

(type locality, Arabian Sea, 512 fathoms).

level of pectoral on body with median dark brown band, equally wide as pale interspaces; arranged from occiput to hind part of soft dorsal obliquely upward, those mostly below lateral line horizontal, likewise posteriorly above lateral line. Iris whitish. Dorsals varied with white and brown, as several dark spots along each ray or spine basally or subbasally with terminal part of fins more uniformly dark. Upper inner pectoral axil dark brown to dusky. Anal little darker in front and basally, fins otherwise all more or less dull brownish.

India, Cochin China, Manchuria, Japan.

Depth 3; head 3. Snout $4\frac{1}{2}$ in head; eye $3\frac{1}{3}$, greater than snout, without adipose eyelids; maxillary reaches eye, largely concealed, length $3\frac{1}{8}$ in head; Interorbital moderately high.

Scales 53 in lateral line, 15 transverse. Lateral line nearly concurrent with dorsal profile. Head entirely scaly. Breast scales size of lateral body scales.

D. X, 20, first fin height $3\frac{2}{3}$ in head, second fin height $3\frac{7}{8}$; A. III, 20, fin height $3\frac{1}{5}$; caudal $1\frac{1}{5}$, deeply forked; least depth of caudal peduncle $3\frac{1}{4}$; ventral inserted behind pectoral base, rays I, 5, fin $2\frac{1}{4}$ in head; pectoral rays 19, fin reaches $\frac{1}{2}$ to caudal base, $2\frac{7}{8}$ in fish without caudal.

Chocolate brown. Length 320 mm. (Lloyd.)
Arabian Sea.

861

Cubiceps caeruleus Regan

Cubiceps caeruleus Regan, Ann.

Mag. Nat. Hist., ser. 8, vol. 13, p. 15,
1914 (type locality, Three Kings
Islands, New Zealand); British
Antarctic "Terra Nova" Exped., Zool.,
vol. 1, no. 1, p. 19, June 27, 1914 (copied);

— McCulloch, Rec. Austral. Mus.,
vol. 14, no. 1, p. 15, Pl. 1, fig. 3, Feb.
28, 1923 (Lord Howe material).

Zool., vol. 1, no. 4, p. 144, March 25, 1916
(between North Cape and Doubtless Bay,
New Zealand).

Cubiceps gracilis (not Lowe) Waite,
Rec. Austral. Mus., vol. 5, pt. 3,
p. 162, 1904 (Lord Howe Island).

Depth $3\frac{1}{6}$; head $3\frac{2}{5}$.

Snout $4\frac{1}{10}$ in head; eye $3\frac{1}{4}$, slightly greater than snout; maxillary not quite reaching eye, length $3\frac{3}{4}$ in head; jaws with single row of small cardiform teeth; small patch of similar teeth on vomer and 1 or 2 on front part of each palatine; interorbital about $2\frac{3}{4}$?, moderately elevated; opercles with radiating striae; supra-clavicle and clavicle exposed, striate.

Scales about 52 in lateral line; covered greater part of head and bases of vertical fins, thin, concentrically striate. Lateral line little more arched than back. Groove along middle

D. XIII, 13 (12, I on figure), fifth spine $2\frac{1}{8}$ in total head length, first ray $2\frac{9}{10}$;

A. III, 13 (11, I on figure), third spine $3\frac{1}{5}$ or subequal with first ray; caudal $1\frac{1}{5}$, forked; least depth of caudal peduncle 3; pectoral $1\frac{1}{4}$; ventral $1\frac{1}{2}$.

Above head colored, upper rows of scales each with more or less darker centers. Broad median brass colored lateral band from head to caudal base, broad on costal region and narrowing behind. Lower half of body silvery white. Eye and fins uniform. Length 153 mm. (Steindachner.)

Arabia.

of each side from shoulder to caudal peduncle. Scales on chest and breast not larger than on sides of body. D. XI, I, 21, spinous fin evidently higher than soft dorsal, first branched dorsal ray $2\frac{2}{3}$ in head; A. III, 21, first branched ray $2\frac{2}{5}$; caudal $1\frac{1}{10}$?, forked; least depth of caudal peduncle 3; ventral $2\frac{1}{6}$, rays I, 5; pectoral rays 21, fin reaches $2\frac{1}{5}$ to caudal base, length $3\frac{1}{8}$ in fish without caudal.

(McCulloch.)

Lord Howe Island and New Zealand. From the following is from Regan's accounts:

Paul⁷⁹ Box lineatus (Boulenger)

Box lineatus Boulenger, Proc. Zool. Soc. London, 1892, p. 134. Muscat, East Arabia.

Steindachner, Anzeiger Akad. Wiss. Wien, vol. 39, Nr. 24, Nov. 20, 1902, p. 316 (Kischiu); Denkschr. Akad. Wiss., Math.-Naturw. Klasse, vol. 71, pt. 1, 1907, p. 135, pl. 2, fig. 2 (Geschiu, South Arabia).

Depth $3\frac{2}{5}$; head $3\frac{1}{4}$. Snout $4\frac{1}{2}$ in head from snout tip; eye $3\frac{3}{5}$, little greater than snout; maxillary reaches $\frac{7}{8}$ to eye, length $3\frac{1}{2}$ in head from snout tip; interorbital low; preopercle edge slightly uneven.

Scales 70 in lateral line to caudal base and 7 more on latter; 6 above, 13 below, 5 rows on cheek to preopercle ridge. Soft dorsal and anal with low basal sheaths of very fine scales, becoming little higher posteriorly; caudal base finely scaled.

Depth nearly equals head, $3\frac{2}{5}$ to $3\frac{3}{5}$. Snout long as or little shorter than eye, which $3\frac{1}{2}$ to $3\frac{2}{3}$ in head, little less than interorbital; maxillary not quite reaching front eye edge; preorbital narrowed posteriorly, not completely concealing maxillary. Lower gill rakers 14 or 15.

Probably not more than 50 scales in longitudinal series.

D. VI, I, 23; A. III, 21; pectoral long as head, extends to anal origin; caudal forked.

Bluish. Length 110 mm.

Warmer Atlantic, largely of the
Mediterranean region. Vegetable feeders.

Box salpoides Valenciennes described

↓ Hist. Nat. Poiss., vol. 6, 1830, p. 365. Seas of the Indies.

from an example obtained by Peron 125 mm.
long, may be Sparus boops Linnaeus with
wrong locality. It is said to be similar to
the 'Mediterranean form' with body more
elongate but ~~less~~ than that of Box
goeensis. Differs from last in smaller
eye, more obtuse snout and forehead more
erect. No black spot in pectoral axil.

Otherwise same teeth and same number
of rays. Uniform golden yellow, possibly
result of alcohol.

865

Cubiceps pauciradiatus Günther

Cubiceps pauciradiatus Günther,
Ann. Mag. Nat. Hist., ser. 4, vol. 11,
(1872) p. 423 (type locality, Misol,
Moluccas). — Regan, Ann. Mag.
Nat. Hist., ser. 7, vol. 10, p. 123, 1902
(type).

Centropomus maoricus Ogilby

Centropomus maoricus Ogilby, Rec.
Austral. Mus., vol. , pt. , 1873,
p. 64 (type locality,

866

Depth $4\frac{1}{2}$; head $3\frac{1}{2}$. Snout shorter than eye; eye 3 in head, equals interorbital; maxillary reaches below front eye edge.

Scales 48 in lateral line; 3 above, 12 below.

D. VI, I, 17; A. III, 14, begins below seventh ray of soft dorsal; pectoral $1\frac{1}{3}$ times long as head, more than twice long as ventral.

Purplish brown, fins lighter.
Length 120 mm. (Regan)
East Indies.

867

Cubiceps brevimanus Klunzinger

Cubiceps brevimanus Klunzinger,
Fische Roth. Meer., (1884), p. 116, pl.
12, fig. 3 (type locality, Koseir, Red
Sea). — Regan, Ann. Mag. Nat.
Hist., ser. 7, vol. 10, p. 124, 1902
(copied).

auxiliaries; circuli very fine.

D. IX, 10, I, second spine $1\frac{2}{3}$ to $1\frac{7}{8}$ in head, first ray $2\frac{3}{4}$ to 3; A. III, 1, I, third spine $2\frac{1}{5}$ to $3\frac{1}{4}$, first ray $2\frac{2}{5}$ to $2\frac{3}{5}$; caudal 1, widely forked; least depth of caudal peduncle $2\frac{4}{5}$ to $2\frac{7}{8}$; ventral $1\frac{2}{5}$ to $1\frac{3}{4}$; pectoral 3 to $3\frac{1}{3}$ in combined head and body to caudal base.

Back olive to brown, sides and below whitish, all with silvery white sheen. Lips pale. Iris white. Fins all pale, spinous dorsal with membranes dusky terminally and each membrane of dorsal basally with brown spot, concealed by basal scaly sheath of fin. Some brown usually on front membranes of anal.

Red Sea, Arabia, Zanzibar, Mozambique,

868

Ariomma evermanni Jordan and
Snyder, Bull. Bur. Fisher., vol.
26, 1906 (1907), p. 209, fig. 1 (type
locality, Honolulu).

Cubiceps thompsoni Fowler, Ocean.
Pap. Bishop Mus., vol. 8, no. 7, 1923,
p. 378 (type locality, Honolulu);
Mem. Bishop Mus., vol. 10, 1928, p.
138, fig. 32 (types).

Portuguese East Africa, Zululand, Natal,
 Mauritius, Reunion, Madagascar,
 Seychelles, India, Ceylon, East Indies,
 Philippines, Indo China, China, Japan,
 Northern Territory Australia, Queensland,
 Micronesia, Polynesia). The most
 abundant and widely distributed member
 of its genus. In many details it appears
 quite variable and changes in coloration
 and ^{appearance due to} preparation as museum specimens,
 often lead to confusion of materials.
 I find little tangible to distinguish
Gerres kawas Bleeker and Gerres
acinaces Bleeker, the latter here
 placed in the synonymy. Aside from
 its uniformly pale coloration and
 according to Bleeker's figure of Gerres
acinaces it is shown with a denticulate
 suprascapula, a character I have
 not noticed. (The Japanese form).

Cubiceps natalensis Gilchrist and Von Bonde, Fisher. Marine Surv. South Africa, Spec. Rep. no. 3, pt. no. 4, p. 7, pl. 17, fig. 2, 1923 (type locality, Natal coast, 157 to 275 fathoms). — Barnard, Ann. South African Mus., vol. 21, pt. 2, p. 892, Oct. 1927 (Durban Bay).

Cubiceps longimanus Fowler, Proc. Acad. Nat. Sci. Philadelphia, vol. 86, p. 442, fig. 23, 1934 (type locality, Durban, Natal).

Depth $4\frac{1}{4}$; head 4. Snout to eye 3 in head; eye 7, $2\frac{1}{8}$ in snout; orbit 4, $1\frac{1}{8}$ in snout; maxillary reaches half way to eye, length 5 in head; interorbital high.

Scales 50 in lateral line; 3 above, 8 below to anal; sides of head with large scales.

D. X - I, 14 or 15, second spine $1\frac{2}{3}$ in head, first branched ray $3\frac{2}{3}$; A. III, 15, first branched ray $3\frac{3}{4}$; caudal 1, deeply forked; least depth of caudal peduncle $3\frac{2}{3}$; pectoral $1\frac{3}{5}$, rays 24; ventral rays I, 5, fin $2\frac{7}{8}$ in head.

Back dark, sides silvery. Fins gray or gray green, caudal and pectorals white, anal whitish. Length 800mm. (Klunzinger.)
Red Sea to Hawaii.

U. S. N. M., no. 57783, Honolulu.
Dr. D. S. Jordan. Length 188 mm.
Type of Ariomma evermanni.

Genus Ariomma Jordan and Snyder

Ariomma Jordan and Snyder,
Proc. U. S. Nat. Mus., vol. 27, p.
942, 1904. (Type Ariomma lurida
Jordan and Snyder, monotypic.)

Scales with 4 to 6 basal radiating striae; 72 or 73 apical denticles, with 3 or 4 transverse series of basal elements; circuli very fine.

D. VIII - I, 8, I, third spine $1\frac{3}{4}$ to $1\frac{4}{5}$ in head, first ray $2\frac{1}{10}$ to $2\frac{1}{3}$; A. I, 6, I, first branched ray $2\frac{1}{3}$ to $2\frac{1}{2}$; caudal $1\frac{1}{5}$ to $1\frac{1}{4}$, deeply forked, lobes sharply pointed; least depth of caudal peduncle 3; pectoral $1\frac{1}{3}$ to $1\frac{1}{2}$; ventral $1\frac{1}{3}$ to $1\frac{2}{5}$.

Brown generally, little paler below. Blackish blotch size of eye on middle of side of caudal peduncle. Dark streak from side of snout to eye, then postocular along upper side of back or along lateral line anteriorly. Iris grayish. Fins all brownish.

New South Wales. Reaches 250 mm. according to Mc Culloch.

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Body elongate, moderately robust, tapers back from first dorsal. Head large, compressed. Snout deep, compressed, obtuse. Eye large, little advanced, with broad posterior adipose eyelid. Mouth small, superiorly terminal or begins opposite middle in depth of eye. Maxillary not reaching eye, sheathed below broad preorbital. Single row of very small, weak, uniform teeth in each jaw, none on palate or tongue. Lower preopercular edge long, broadly upward or slightly backward behind. Lower gill rakers 19. Scales moderate, very caducous. Muzzle venulose. Spinous dorsal with little shorter base than soft fin. Anal like and opposite soft dorsal, little shorter. Caudal rather small, forked.

874

Pectoral moderate. Ventral short, placed little behind pectoral base.

Closely related to Cubiceps, differing in the large eye with broad adipose lid behind, broadly arched preopercle and the elevated position of the mouth anteriorly. It seems to approach more Atemiostoma Andrew Smith, based on a damaged specimen though greatly larger.

Arionna
Cubiceps lurida (Jordan and Snyder) ⁸⁷⁵

Arionna lurida Jordan and Snyder,
Proc. U. S. Nat. Mus., vol. 27, (1904),
p. 943, (type locality, Honolulu). —

Jordan and Evermann, Bull. U. S.
Fish Comm., vol. 23, pt. 1, (1903 (1905)),

p. 217, pl. 37, (types). — Jordan
and Jordan, Mem. Carnegie Mus.,
vol. 10, no. 1, (December 1922), p. 35,

(Honolulu). — Fowler, Mem. Bishop
Mus., vol. 10, (1928), p. 165, (Honolulu;

not type of Arionna evermanni).

based on Sparus erythrouus Bloch, does not seem to show characters for distinction.

The imperfectly described and crudely figured Genes longicaudus Alleyne and Macleay is probably synonymous:

depth $2\frac{1}{2}$; head $3\frac{1}{5}$. Eye $2\frac{7}{8}$, little longer than snout; maxillary reaches $\frac{1}{5}$ in eye, length $2\frac{2}{5}$ in head; lower jaw shown very slightly protruding; scales 50 in lateral line (about $4\frac{1}{2}$ rows shown on figure along lateral line, with 9 above and 11 below). D. IX, 10, second spine half body depth; A. IV, 7, second and third spines subequally long and slender. Pectoral $1\frac{1}{5}$ in head. Caudal deeply forked, 3 in rest of body. Moderately silvery. Fins pale; dorsal brownish on upper half; caudal tipped black. (Alleyne and Macleay.)

Depth $4\frac{1}{4}$; head 3, width 2.
 Snout $3\frac{1}{4}$ in head from snout tip; eye 3, greater than snout or interorbital, with broad posterior adipose lid; maxillary reaches $\frac{2}{3}$ from snout tip to eye, length $3\frac{4}{5}$ in head; interorbital $3\frac{1}{4}$, low, very slightly convex; mandible $2\frac{3}{5}$ in head from its own tip. Gill rakers 9+19, lanceolate, equal gill filaments or $2\frac{3}{4}$ in eye.

Scales (pockets) 55 in lateral series to caudal base, 15 transversely above anal fin origin, about 15 predorsal forward opposite hind eye edge. Scales very caducous, all fallen.

D. II, 16, spinous fin height $2\frac{4}{5}$? in total head length, soft fin height $3\frac{1}{8}$?; A. 15, fin height $3\frac{1}{5}$?; caudal $1\frac{3}{4}$?, forked; least depth of caudal peduncle 7;

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pectoral $1\frac{3}{4}$? rays 20; ventral
rays I, 5, fin $2\frac{3}{5}$? in total
head, axillary scale $3\frac{2}{3}$ in fin.

Brownish or dark drab
generally. Iris gray. Fins, head
and shoulder girdle all more
or less brownish.

Hawaiian Islands.

U. S. N. M., No. 51400, Honolulu.
E. L. Berndt. Length 200 mm.
Type.

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Genus Psenes Valenciennes

Psenes Valenciennes, Hist. Nat. Poiss.,
vol. 9, (1833, p. 193.) (Type Psenes
cyanophrys Valenciennes, designated
by Jordan and Evermann, Genera of
Fishes, pt. 1, 1917, p. 142.)

fourth of pectoral base or opposite
twenty-second scale of lateral line;

A. III, 12. Length 345 mm.

59951. U.S.N.M. Cook's River, New
South Wales. D.G. Stead. Length 84
to 92 mm. 2 examples.

59983 U.S.N.M. Merimbula, New
South Wales. D.G. Stead. Length
111 to 116 mm. 2 examples.

1

Body ovoid, well compressed.
 Head moderate, compressed. Snout
 short, obtuse. Eye large, advanced.
 Mouth small, jaws even. Maxillary
 oblique. Teeth uniserial, well
 separated, none on palate or
 tongue. Nostrils small, together.
 Gill rakers clavate, lower about
 20. Vertebrae 31. Scales 40 to 60
 in lateral line. Dorsal spines
 10 or 11, high as soft dorsal.
 Anal spines 3. Ventral inserted
 below pectoral.

Pelagic fishes. Species rather
 few.

Analysis of Species

- a.' Psenes. Scales small; dorsal and anal fins scaly.
- b.' Scales 52 to 60 in lateral line to caudal base.
- c.' Depth $1\frac{4}{5}$ to $2\frac{1}{5}$; dorsal rays 22 or 23.
- d.' Anal rays 23 to 25. cyanophrys.
- d.² Anal rays 21 to 23. nigrescens.
- c.² Depth $2\frac{1}{3}$ to $2\frac{1}{2}$; dorsal rays 19 or 20. whiteleggi.
- b.² Scales 42 to 48 in lateral line.
- e.' Dorsal rays 19 to 22.
- f.' Depth $2\frac{1}{2}$ to 3. maculatus.
- f.² Depth $1\frac{3}{4}$. arafurensis.
- e.² Dorsal rays 15; depth $2\frac{1}{4}$ to $2\frac{3}{5}$. indicus.
- a.² Gymopsenes. Scales large, 34 in lateral line; dorsal and anal fins scaleless. regulus.

881

Psenes cyanophrys Valenciennes

Psenes cyanophrys Valenciennes, Hist. Nat. Poiss., vol. 9, (1833), p. 193, pl. 265,

(type locality, New Ireland). —

Günther, Rep. Voy. Challenger,

vol. 31, pt. 2, (1888 (1889)), p. 12,

(south of New Guinea; between

Philippines and New Guinea; north of New Guinea). — Regan, Ann. Mag. Nat. Hist., ser. 7, vol. 10, p. 125, 1902

(Atlantic; Indo-Pacific).

— B. A. Bean, Geogr. Soc. Baltimore, Special Pub., p. 304, 1905 (Green Cay, Bahamas).

— Weber, Siboga Exped., vol. 57, Fische, p. 152, 1913.

— Fowler, Mem. Bishop Mus., vol. 10,

(1928), p. 138 (compiled).

— Norman, Ann. Mag. Nat. Hist., ser. 9, vol. 9, p. 320, 1922 (Natal). — Barnard, Ann. South African Mus., vol. 21, pt. 2, p. 893, Oct. 1927 (Natal).

— Norman, Ann. Mag. Nat. Hist., ser. 9, vol. 9, p. 320, 1922 (Natal). — Barnard, Ann. South African Mus., vol. 21, pt. 2, p. 893, Oct. 1927 (Natal).

— Norman, Ann. Mag. Nat. Hist., ser. 9, vol. 9, p. 320, 1922 (Natal). — Barnard, Ann. South African Mus., vol. 21, pt. 2, p. 893, Oct. 1927 (Natal).

— Norman, Ann. Mag. Nat. Hist., ser. 9, vol. 9, p. 320, 1922 (Natal). — Barnard, Ann. South African Mus., vol. 21, pt. 2, p. 893, Oct. 1927 (Natal).

— Norman, Ann. Mag. Nat. Hist., ser. 9, vol. 9, p. 320, 1922 (Natal). — Barnard, Ann. South African Mus., vol. 21, pt. 2, p. 893, Oct. 1927 (Natal).

— Norman, Ann. Mag. Nat. Hist., ser. 9, vol. 9, p. 320, 1922 (Natal). — Barnard, Ann. South African Mus., vol. 21, pt. 2, p. 893, Oct. 1927 (Natal).

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dorsal spine; interorbital about 3 in head; opercle pointed. Scales 60 in lateral line, 9 above, 18 below; ctenoid; much smaller on head, including opercle and preopercle, also belly, than on flanks. D. XV, 12; A. III, 12; ventral midway between ventral tips and base of first anal spine. Length 230 mm.

Aptodon sulcatus. *Cuvier 79 sulcatus*

Depth $3\frac{1}{4}$ in total; head $4\frac{3}{4}$. Eye 5 in head; row of small teeth on palate, a character in young examples; interorbital 3 in head, equals fourth dorsal spine. Scales 50 to 53 in lateral line, 9 above, 17 below; interspinous dorsal membrane not scaled as in other 2 species. Vent midway between ventral tips and caudal base. D. XV, 12, spinous fin beginning near first

— McCulloch, Austral. Mus.
Mem., No. 5, pt. 1, p. 123, June 29,
1929 (reference). — Fowler, Proc.
Acad. Nat. Sci. Philadelphia, vol.
86, p. 443, Nov. 6, 1934 (reference).

r.⁴ Single dark median longitudinal band from suprascapula to caudal; large round black suprascapular spot above dark lateral band.

laterale

d.⁴ No dark transverse^s or longitudinal bands on body.

t.¹ Dorsal spines 7.

u.¹ Body largely uniform brown; no dark rostral bar to eye.

v.¹ Hind part of tail with large transverse blackish band; 2 blue bands from snout to eye and opercles.

fleurieu

v.³ No black band on tail or blue bands on head.

w.¹ Body uniformly dark brown; ~~the~~ second dorsal and anal each with large basal

Psenes javanicus Valenciennes, Hist. Nat. Poiss., vol. 9, (1833) p. 264, (type locality, Batavia).

— Bleeker, Verh. Batavia. Genoot. (makreel.), vol. 24, (1852) p. 74,

(reference); Act. Soc. Sci. Ind.

Néerl., vol. 2, no. 7, (1857) p. (5)60,

(Amboina). — Günther, Cat.

Fish. Brit. Mus., vol. 2, p. 494,

1860 (Amboina). — Day, Fishes of

India, pt. 2, p. 237, pl. 51C, fig. 1, 1876

(Madras); Fauna British India,

Fishes, vol. 2, p. 184, ^{fig. 64,} 1889.

(Kuhl and Van Hasselt)
Tenmodon javanicus Bleeker, Verh. Batavia. Genoot. (makreel.), vol. 24, p. 74, 1852 (name in synonymy).

p. 628 (Mozambique).

Sparus erythroumus Bloch, Naturges.
Ausland. Fische, vol. 8, 1790, p. 23, pl.
261. Japan.

Xystaema oyena Seale and Bean, Proc. U.S.
Nat. Mus., vol. 33, 1907, p. 244 (Zamboanga).
(Misprint.)

Xystaema erythroum Jordan, Proc. U.
S. Nat. Mus., vol. 32, 1907, p. 246, fig. 1.
(Nagasaki, Wakanoura, Oita). ¹/₂ Snyder,
Proc. U.S. Nat. Mus., vol. 42, 1912, p. 416
(Tanegashima). ¹/₂ Izuka and Hatsuiwa,
Cat. Zool. Spec. Tokyo Mus. Vertebrates,
1920, p. 147 (Ogasawarajima). ¹/₂ Fowler,
Proc. Acad. Nat. Sci. Philadelphia, 1929
(1930), p. 647 (Japan). J. Schmidt, Bull. Acad.
Sci. URSS, 1930, p. 546 (Alkhuay);
Labrus longirostris Racepede, Hist. Nat.
Poiss., vol. 3, 1802, pp. 467, 468, pl. 19, fig. 1.
Great Gulf of India.

Psenes auratus Valenciennes, Hist. nat. Poiss., vol. 9, (1833) p. 264, (type locality, Bengal Bay). — Bleeker, Verh. Batavia Genoot. (Nal. Ichth. Bengal), vol. 25, (1853) p. 46 (reference).

Psenes leucurus Valenciennes, Hist. nat. Poiss., vol. 9, (1833) p. 265, (type locality, Sea of Indies, near Equator; Port Jackson).

Psenes guamensis Valenciennes, Hist. nat. Poiss., vol. 9, (1833) p. 266, (type locality, Guam). — Günther, Journ. Mus. Godeffroy, vol. 5, pt. 11, (1876) p. 145, pl. 91, fig. C. (South Sea).

Cubiceps multiradiatus Günther, Proc. Zool. Soc. London, (1871) p. 661, pl. 61, (type locality, Manado, Celebes).

well exposed and each with small basal scale. Scales with 12 basal radiating striae; 76 to 83 apical denticles, with 7 or 8 transverse series; ~~and~~ circuli, fine.

D. VII - I, 9, I, fourth spine $2\frac{2}{5}$ to $2\frac{2}{3}$ in total head length, second ray $1\frac{1}{2}$ to $1\frac{3}{4}$; A. II, 8, I, second spine $3\frac{1}{4}$ to $3\frac{2}{5}$, second ray $1\frac{7}{8}$ to 2; caudal $1\frac{1}{3}$ to $1\frac{2}{5}$, hind edge convex; least depth of caudal peduncle $2\frac{1}{8}$ to $2\frac{1}{5}$; pectoral $1\frac{3}{5}$ to $1\frac{2}{3}$; ventral $1\frac{4}{5}$ to $1\frac{7}{8}$.

Brown above, lighter below. Head sprinkled with dull or obscure brownish specks or dots, very numerous on mandible anteriorly and on cheek, but few on opercle above. Iris whitish, with gray above. Dorsals

Pseneas fuscus Guichenot, Mém. Soc.
Sci. Nat. Cherbourg, (1866) p. 138.
(type locality, Madagascar).

- Gerres acinaces Bleeker, Natuurk.
Tijds. Nederl. Indie, vol. 6, 1854, p. 194.
Batavia, Java. ¹ Günther, Cat. Fishes
Brit. Mus., vol. 1, 1859, p. 351 (compiled);
 vol. 2, 1862, p. 262 (no locality). ¹ Day,
Proc. Zool. Soc. London, 1879, p. 698 (Andamans). ¹ Macleay, Proc. Linn. Soc. New South
Wales, vol. 7, 1882, p. 240 (New Guinea).
¹ Boulenger, Proc. Zool. Soc. London,
 1887, p. 657 (Muscat, East Arabia).
¹ Sauvage, Hist. Nat. Madagascar, Poiss.,
 1891, p. 245. ¹ Steindachner, Denks.
Abad. Wiss. Wien, math.-natur. Wiss.
Klasse, vol. 71, abth. 1, 1907, p. 137 (Teiche
 Lebine and Scheich Othman, South Arabia).
¹ Zugmayer, Abhandl. Kon. Bayer.
Abad. Wiss., math.-physik. Klasse,
 vol. 26, band 6, 1913, p. 11 (Mekran).
¹ Fowler, Proc. Acad. Nat. Sci. Philadelphia,
 1925, p. 245 (Durban Bay; Delagoa Bay);
Mem. Bishop Mus., vol. 10, 1928, p. 224

Psenes chapmani Fowler, Proc.

Acad. Nat. Sci. Philadelphia,

(1906, p. 119, fig. 3) (type locality,

Open Atlantic in N. lat. $24^{\circ} 21'$ W.

Long. $34^{\circ} 32'$, northwest of Cape Verde

Islands; northwest of Lesser

Antilles; Saragossa Sea); vol.

86, p. 443, Nov. 6, 1934 (reference).

Brama raii (not Bloch) B. A. Bean,

Geogr. Soc. Baltimore, Special Pub.,

p. 304, 1905 (near Cape Hatteras).

Psenes guttatus Fowler, Proc. Acad.

Nat. Sci. Philadelphia, (1906, p. 121)

(lapsus for Psenes chapmani).

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Australia, Tasmania and New Zealand. I have placed the nominal forms introduced by Thominot as synonyms of the present species. In brief they are noted:

Aplodon margeritiferrum. *Cuv. 129 side h. & d.*

Depth somewhat more than 3 in total; head $4\frac{1}{2}$, profile rounded. Eye 4 in head; mouth reaches opposite front nostril, nearly 3 in head, longer than sixth dorsal spine; interorbital $3\frac{1}{3}$ in head. Scales 53 or 56, 10 above, 23 below. D. XV, 11; A. III, 12; caudal bilobate; pectoral longer than anal base, ventral similar. Length 183 mm.

Aplodon castelnaui. *Cuv. 129 side h. & d.*

Depth $3\frac{1}{3}$ in total; head $3\frac{1}{2}$. Eye equals space between snout tip and front nostril or 4 in head; mouth not quite 3 in head or equals fourth

Depth $1\frac{5}{6}$ to $1\frac{7}{8}$; head $2\frac{3}{5}$ to 3, width 2 to $2\frac{1}{10}$. Snout $3\frac{3}{4}$ to 4 in head; eye $2\frac{1}{3}$ to 3, greater than snout; maxillary reaches nearly or quite to eye, length $2\frac{2}{3}$ to 3 in head; interorbital $2\frac{3}{5}$ to 3, convexly elevated. Gill rakers 11 + 20, little shorter than gill filaments, which 2 in eye.

Scales 56 to 60 in lateral line; 7 to 9 above, 25 below, 7 rows across cheeks. Head scaly except muzzle. Scales with 5 basal radiating striae, edge lobate; circuli 30. Lateral line concurrent with dorsal profile.

D. X, I, 22 or 23, fourth spine $1\frac{7}{8}$ to $2\frac{1}{8}$ in head, first branched ray $2\frac{1}{6}$ to $2\frac{1}{4}$; A. III, 23 to 25, first branched ray $2\frac{1}{3}$ to 3; caudal nearly long as head, well

forked; least depth of caudal peduncle 3; pectoral $1\frac{1}{8}$ to $1\frac{2}{5}$; ventral $1\frac{1}{3}$ to $1\frac{3}{4}$.

Brown, paler below, evidently silvery in life. Along each row of body scales line of dark brown. Lower side of head spotted or dotted with brown. Spinous dorsal and ventral dusky brown, other fins brownish.

Pelagic in the warmer Atlantic.

U. S. N. M., no. 24789. Cuba. Prof. J. Poey. Length 138 mm. As Preues javanicus.

U. S. N. M., no. 53121. Green Cay, Bahamas. June 29, 1903. Length 41 mm. Depth 2.

U. S. N. M., no. 53123. Near Cape Hatteras, North Carolina. June 5, 1903. Geogr. Soc. Baltimore Bahama Exped. B. A. Bean. Length 24 mm. As Brama raii. Depth $1\frac{3}{4}$.

U. S. N. M., no. 64120. Nomans Land, Mass. U. N. Edwards. 1904. Length 163 mm.

U. S. N. M., no. 83924.

Albatross (Hydr. $\frac{52142}{}$). 1884.

Length 38 mm. D. IX, I, 27; A. III, 27. Scales 68.

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A. N. S. P., no. 14621. Open
Atlantic. Dr. W. H. Jones.
Type of Prenes chapmani.

A. N. S. P., nos. 14622 to 14628.
Open Atlantic. Dr. W. H. Jones.
Paratypes of Prenes chapmani.

A. N. S. P., nos. 11307 to 11309.
Open Atlantic. Dr. W. H. Jones.

A. N. S. P., nos. 24197. Saragossa
Sea, Atlantic. Dr. W. H. Jones.

Depth $1\frac{2}{5}$ to $1\frac{1}{2}$, head $3\frac{1}{8}$ to $3\frac{1}{2}$, width $1\frac{7}{8}$ to 2. Snout $3\frac{1}{2}$ to $3\frac{7}{8}$ in head; eye $3\frac{7}{8}$ to 4, subequal with snout, 2 to $2\frac{1}{5}$ in interorbital; maxillary reaches $\frac{2}{5}$ to $\frac{1}{2}$ in eye, length from snout tip $2\frac{1}{8}$ to $2\frac{1}{5}$ in head; interorbital $2\frac{1}{3}$ to $2\frac{2}{5}$, broadly convex. Gill rakers 1+8, short, inconspicuous points, $\frac{1}{5}$ of gill filaments, which $1\frac{1}{4}$ in eye.

Scales very minute, inconspicuous. Lateral line incomplete or not extended beyond dorsal base, well arched though not quite parallel with dorsal profile of body.

D. VIII, 40 or 41, spines low, truncate, with point in front and behind, inconspicuous, seventh ray $2\frac{2}{5}$ to $2\frac{3}{5}$ in fish without caudal; A. V or VI, ³⁷

891

Penes nigrescens Lloyd
Penes nigrescens Lloyd, Mem.
Indian Mus., vol. 2, no. 3, p. 158,
pl. 17, fig. 6, 1909 (type locality,
Andaman Sea, in 950 fathoms).

occiput and 16 to 21 more forward to snout end; 12 principal rows of scales across cheeks; soft dorsal with single row of basal scales, anal also with low sheath; caudal finely scaled basally. Scales 19 to 21 basal radiating scale; 42 or 43 small apical denticles, with 0 to 2 transverse series of basal elements; circuli moderate.

D. X, I, 27, ± or 28, I, third spine $1\frac{4}{5}$ in head, first ray $2\frac{2}{3}$ to $2\frac{3}{4}$; A. II, 7, I, second spine $2\frac{1}{3}$ to $2\frac{4}{5}$, first ray $1\frac{7}{8}$ to $1\frac{9}{10}$; caudal $1\frac{1}{2}$ to $1\frac{2}{3}$, cuneate; least depth of caudal peduncle $3\frac{1}{8}$; pectoral $1\frac{1}{4}$ to $1\frac{3}{5}$; ventral $1\frac{3}{5}$ to $1\frac{1}{3}$.

Back brown, under surfaces paler to whitish. Each row of scales above

Depth $1\frac{4}{5}$; head $2\frac{3}{4}$. Snout $4\frac{3}{4}$ in head; eye $3\frac{1}{8}$ (3 in description), greater than snout; maxillary reaches $\frac{1}{5}$ ($\frac{1}{2}$ in description) in eye, length $2\frac{3}{4}$ in head; teeth small, uniserial, none on palate; interorbital moderately high.

Scales about 50? in lateral line, which little more widely convex than dorsal profile.

D. IX, 22 to 25, first fin height 2 in head, soft dorsal much lower; A. III, 21 to 23, like second dorsal; caudal forked, $1\frac{1}{5}$? in head; least depth of caudal peduncle 3; pectoral $1\frac{1}{2}$?; ventral inserted below pectoral base, $1\frac{4}{5}$ in head.

Dark gray brown. Fins black, except caudal, which with little pigment and pectoral with none. Length not given. (Lloyd.)
Sundaman Islands.

893

Prænes whiteleggi Waite

Prænes whiteleggi Waite, Proc.
Linn. Soc. New South Wales,

(1894) p. 218, pl. 17, fig. 1 (type locality,
Maroubra, New South Wales). —

McCulloch, Fish New South Wales,
p. 42, pl. 16, fig. 152 b, 1919; Austral.
Mus. Mem., no. 5, pt. 1, p. 123, June 29,
1929 (reference).

— Regan, Ann. Mag. Nat. Hist.,
ser. 7, vol. 10, p. 126, 1902 (copied).

1885, p. 18 (Cebu). ¹/_m Day, Fauna
British India, vol. 2, 1889, p. 538.

¹/_m Thurston, Pearl Fisher, Gulf of
Manaar, 1890, p. 91 (Pambaran). ¹/_m

Sauvage, Hist. nat. Madagascar, Poiss.,
1891, p. 243, pl. 36 d, fig. 2 (Red Sea;

Zanzibar). ¹/_m Elera, Cat. Fauna Filip.,
vol. 1, 1895, p. 560 (Cebu). ¹/_m Ishikawa

and Matsuura, Prelim. Cat. Fishes
Mus. Tokyo, 1897, p. 27. ¹/_m Pellegrin, Bull.

Soc. Zool. France, vol. 30, 1905, p. 84
(Baie de Along, Tonkin). ¹/_m Beaufort,

Bijdr. Dierk. Amsterdam, vol. 19, 1913, p.
121 (Majalibit Bay, Waigiu). ¹/_m Weber,

Siboga Exped., vol. 57, 1913, p. 273
(Kwandang, North Celebes; Lirung,

Salibabu). ¹/_m Pellegrin, Bull. Soc. Zool.
France, vol. 39, 1914, p. 225 (Fort Dauphin,

Madagascar). ¹/_m Korman, Trans. Zool.
Soc. London, pt. 3, 1927, p. 380 (Kabret

Pseudes hillii Ogilby, Mem. Queens-
land Mus., vol. 3, p. 119, Jan. 28,
1915 (type locality, Cowan Cowan,
Moreton Bay, Queensland). —
McCulloch, Austral. Mus. Mem.,
no. 5, p. 123, June 29, 1929 (reference).

black or blue ocellus.

melas

~~no dorsal ocellus,
vertical and ventral fins
blackish. nigricans~~

w.² Body uniformly rosy,
yellowish or pale brown.

x.¹ no dark rostral bar;
spinous dorsal little darker
terminally.

y.¹ Second dorsal spine
not elongated and
filamentous, but little
over half of head. monochrou

y.² Second dorsal spine
elongated, filamentous,
usually greater than head.

hypselonotus

x.² Dark rostral bar present.

z.¹ no dark median caudal
spot.

Depth $2\frac{1}{3}$; head $2\frac{1}{2}$ to $2\frac{3}{5}$, width $1\frac{7}{8}$ to 2. Snout 4 to $4\frac{1}{8}$ in head; eye 3 to $3\frac{1}{5}$, greater than snout, subequal with interorbital; maxillary reaches $\frac{1}{4}$ in eye, length 3 to $3\frac{1}{8}$ in head; interorbital $2\frac{2}{3}$ to 3, low, broadly convex; preopercular edge well curved convexly. Gill rakers 4 + 15, lanceolate, $1\frac{2}{3}$ in gill filaments, which 2 in eye.

Scales 52 or 53 in lateral line to caudal base; 5 above, 14 below, 10 predorsal forward opposite hind pupil edge. Head largely scaly except naked muzzle. Pectoral and soft vertical fin bases scaly.

D. XI, I, 19 or 20, ^{spinous} fin height $1\frac{1}{2}$ to $1\frac{4}{5}$ in head, soft fin height 2 to $2\frac{1}{8}$; A. III, 18, soft fin height

$1\frac{7}{8}$ to $2\frac{1}{8}$; caudal $1\frac{1}{8}$, deeply forked; least depth of caudal peduncle $3\frac{2}{5}$ to $4\frac{1}{4}$; pectoral $1\frac{1}{5}$ to $1\frac{1}{4}$, rays $\overline{\text{II}}$, 17; ventral rays $\overline{\text{I}}$, 5, fin $\overline{\text{I}}$ $1\frac{3}{5}$ to $1\frac{3}{4}$ in head.

Dull or pale brown, with broad darker brown band transversely from spinous dorsal and another from middle of soft dorsal to middle of anal and third less defined at caudal base. Iris brownish. Spinous dorsal and ventral with blackish brown membranes. Soft dorsal and anal largely brown, also all of caudal, edges of first two fins whitish. Pectoral pale or very light brown.

New South Wales, Borneo.

3 examples. Birabirahan
Island, off Borneo, East Indies.
December 31, 1909. With jelly
fish. Length 16 to 43 mm.

898

Prænes maculatus Lütken

Prænes maculatus Lütken, Kon. Dansk. Vid. Selsk. Skrift. Kjöbenhavn, ser. 5, vol. 12, (1880), p. 518, pl. 5, fig. 2, (type locality, N. lat. 39° to S. lat. $25^{\circ} 4'$, W. long. $34^{\circ} 40'$ to $27^{\circ} 26'$). — Collett, Rés. Camp. Sci. Monaco, vol. 9, (1895), p. 3, pl. 4, fig. 17, (N. lat. $41^{\circ} 40' 37''$, W. long. $43^{\circ} 48' 10''$, between Newfoundland and Azores).

— Regan, Ann. Mag. Nat. Hist., ser. 7, vol. 10, (1902), p. 125, (copied). — Fowler, Proc. Acad. Nat. Sci. Philadelphia, vol. 86, p. 442, Nov. 6, 1934 (reference).

scales in lateral line to caudal base;
 13 scales above, 20 or 21 below, 20 to
 22 predorsal forward opposite eye
 center, 11 rows on ^{check to} preopercle ridge.
 Scales with 15 to 17 basal radiating
 striae; 9 to 19 apical denticles, with
 7 or 8 transverse series of basal
 elements; circuli fine.

D. XV, 12, I, last spine $2\frac{1}{8}$ to $2\frac{1}{3}$
 in head, first ray $1\frac{4}{5}$ to $1\frac{7}{8}$; A.
III, 11, I or 12, I, third spine $2\frac{1}{10}$ to $2\frac{1}{2}$,
 first ray $1\frac{3}{4}$ to $1\frac{4}{5}$; least depth of
 caudal peduncle 2 to $2\frac{1}{5}$; pectoral
 $1\frac{2}{5}$ to $1\frac{1}{2}$; ventral $1\frac{1}{2}$ to $1\frac{3}{5}$;

caudal $1\frac{1}{10}$ to $1\frac{1}{8}$, slightly emarginate
 behind;

Uniform dusky brown. Iris gray.
 Fins all more or less dusky gray,
 especially terminally, membranes
 darker than rays.

Psenes guttatus (not Fowler 1906)
Fowler, Proc. Acad. Nat. Sci.
Philadelphia, vol. 86, p. 442, fig.
24, Nov. 6, 1934 (type locality,
Natal).

Depth $2\frac{3}{5}$ to $4\frac{1}{10}$; head $3\frac{1}{4}$ to $3\frac{2}{3}$, width 2. Snout $2\frac{1}{2}$ to $2\frac{2}{3}$ in head; eye $3\frac{2}{3}$ to $3\frac{3}{4}$, $1\frac{1}{3}$ to $1\frac{2}{3}$ in snout, $1\frac{1}{5}$ to $1\frac{1}{4}$ in interorbital; maxillary reaches $\frac{3}{4}$ to $\frac{7}{8}$ to eye, expansion $1\frac{3}{4}$ to $1\frac{4}{5}$ in eye, length $2\frac{3}{4}$ to 3 in head; teeth villiform, in narrow bands in jaws, about 3 or 4 irregular series anteriorly, fewer laterally; barbels reach opposite hind preopercle edge, length $1\frac{2}{5}$ to $1\frac{1}{2}$ in head; interorbital 3 to $3\frac{1}{3}$, broadly convex; preopercle edge entire. Gill rakers 8 or 9 + 23 or 24, lanceolate, $1\frac{2}{3}$ in gill filaments, which $1\frac{1}{2}$ in eye.

Scales 37 in lateral line to caudal base and 3 more on latter; 3 above, 7 below, 15 predorsal forward to first third in snout, 3 rows on cheeks. Scales with 6 or 7 basal

Depth $2\frac{1}{2}$; head $2\frac{3}{4}$, width 2.
 Snout 4 in head; eye 3, greatly exceeds snout, $1\frac{1}{5}$ in interorbital; maxillary reaches $\frac{1}{5}$ in eye, length $2\frac{3}{4}$ in head; interorbital $2\frac{4}{5}$, low, broadly convex; preopercle edge ^{well} broadly rounded. Gill rakers 5+15, lanceolate, $\frac{1}{2}$ of gill filaments, which $1\frac{4}{5}$ in eye; preopercle with radiating striae.

Scales 48 in lateral line to caudal base; 5 above, 20 below; 25 predorsal forward opposite nostrils; 5 rows across cheek to preopercle edge. Soft vertical fins covered with fine scales broadly over basal areas. Scales simple, adherent, with 8 to 10 complete circuli.

D. XI, I, 22, I, spinous fin height $1\frac{4}{5}$ in head, soft fin

901

height $1\frac{7}{8}$; A. III, 23, I, soft
fin height $2\frac{1}{8}$; caudal $1\frac{1}{4}$,
well forked; least depth of
caudal peduncle 4; pectoral
 $1\frac{1}{8}$, rays I, 18; ventral rays
I, 5, fin $1\frac{1}{8}$ in head, inner
ray with rather broad membrane
basally.

Back brown, sides and below-
paler to whitish, with silvery
sheen. Clouded or dark blotches,
several as transverse bands
from soft vertical fins, also
3 or 4 dark blotches basally
on each. Iris pale or whitish.
Spinous dorsal with dark brown
membranes, at least terminally.
Ventral with dark subbasal
blotch and another terminal.
Fins otherwise pale.

Atlantic and Pacific.

U. S. N. M., no. 83792.

Albatross Collection (2711). Length
14 to 50 mm. Four examples.

U. S. N. P., nos. 11345 to 11348.

No data.

U. S. N. P., no. 11344. Northern
Polynesia. Dr. W. H. Jones.

903

Prænes arafurensis Günther

Prænes arafurensis Günther, Rep.,
Voy. Challenger, vol. 40, 1888, p. 13,
pl. 2, fig. 5 (type locality, Arafura
Sea); — Fowler, Bull. Bishop

Mus., no. 26, 1925, p. 11 (Gardner
Island); Mem. Bishop Mus.,
vol. 10, 1928, p. 139, fig. 33 (Gardner
Island example).

— Regan, Ann. Mag. Nat. Hist.,
ser. 7, vol. 10, p. 126, 1902 (type).

Annals South African Mus., vol. 6,
1908-10, p. 227 (Durban Museum; Natal);
Annals Durban Mus., vol. 1, pt. 4, 1917,
p. 352 (compiled).

Gerres longicaudus Alleyne and
Macleay, Proc. Linn. Soc. New South
Wales, vol. 1, 1876 (February 1877), p.
272, pl. 7, fig. 2. Cape Grenville.

Gerres rüppellii Klunzinger, Fische
Roth. Meer., 1884, p. 48, ~~figure erroneous~~ ^{(not figured, reference to}
~~figure erroneous)~~ ^{figure erroneous} Red Sea.

Gerres socotranus Steindachner, Zoolog.
Anzeiger, vol. 39, Nachr. 24, November 20,
1902, p. 310. Socotra; ^{chr} ~~Duks~~ ^{chr} ~~Abad~~ ^{chr} Wiss.
Wien, math.-naturw. Klasse, vol. 71, abth. 1,
1907, p. 137 (Kor Gariich, brackish water,
Socotra).

Depth $1\frac{3}{4}$; head $2\frac{2}{3}$, width $2\frac{1}{10}$. Snout 4 in head; eye $3\frac{1}{8}$, greatly exceeds snout, equals interorbital; maxillary reaches $\frac{1}{3}$ below eye, expansion 3 in eye, length $2\frac{1}{3}$ in head; interorbital $2\frac{2}{3}$, low, broad, depressed; lower preopercle edge broadly convex. Gill rakers 6 + 15, lanceolate, $1\frac{1}{4}$ in gill filaments, which $1\frac{4}{5}$ in eye.

Scales 43 in lateral line to caudal base; 5 above, 19 below, 15 predorsal forward opposite front pupil edge. Fins mostly with small scales basally, form narrow sheath along spinous dorsal, half way out at least on soft fins. Scales with 0 to 2 feeble or obsolete radiating striae, edge slightly scalloped; circuli

fine or moderate, complete.
 D. X, I, 21, third spine $1\frac{4}{5}$
 in head, fifth ray 2; A. III, 22,
 fifth ray $1\frac{1}{4}$; caudal $1\frac{1}{8}$, forked;
 least depth of caudal peduncle
 4; pectoral $1\frac{1}{8}$, rays II, 17;
 V. I, 5, fin $1\frac{1}{4}$ in head, last
 ray with broad basal membrane.

• Brown, little paler and
 little light brassy below. Iris
 brownish. Spinous dorsal and
 ventrals blackish brown. Soft
 dorsal and anal with each
 membrane medially and broadly
 blackish brown. Caudal and
 pectoral pale.

Arafura Sea, Gardner
 Island.

1407. D. 5196.

April 3, 1908. Length 74 mm.

906

Prænes indicus (Day)

Cubiceps indicus Day, Proc. Zool.
Soc. London, p. 690, 1870 (type locality,
Madras).

Prænes indicus Day, Fishes of India,
pt. 2, p. 237, pl. 54, fig. 2, 1876 (types);
Fauna British India, Fishes, vol. 2,
p. 185, 1889. — Regan, Ann. Mag.

Nat. Hist., ser. 7, vol. 10, p. 126, 1902
(Madras); Journ. Bombay Nat.
Hist. Soc., vol. 16, pt. 2, p. 329, 1905
(Persian Gulf). — Fowler, Proc.
Acad. Nat. Sci. Philadelphia,
vol. 77, p. 212, 1925 (Richard's Bay,
Natal). — Barnard, Ann. South
African Mus., vol. 21, pt. 2, p. 893,
Oct. 1927 (Mossel and Algoa Bays,
Natal, Zululand, 16 to 55 fathoms).

1056
Mulloidichthys vanicolensis (Valenciennes)
Cuvier

Upeneus vanicolensis Valenciennes, Hist.
Nat. Poiss., vol. 7, 1832, p. 521. Vanicolo.
 $\frac{1}{m}$ Smith and Swain, Proc. U. S. Nat.
Mus., vol. 5, 1882, p. 131 (Johnston
Island).

Mulloides vanicolensis Bleeker, Natuurk.
Tijdschr. Nederl. Indië, vol. 4, 1853,
p. 601 (Ternate); vol. 13, 1857, p. 371
(Sangi). $\frac{1}{m}$ Günther, Cat. Fishes Brit.
Mus., vol. 1, 1859, p. 404 (compiled). $\frac{1}{m}$
Schmeltz, Cat. Mus. Godeffroy, no. 3, 1866, p. 7 (Samoa);
no. 4, 1869, p. 14 (Samoa; Viti Islands). $\frac{1}{m}$ Bleeker,
Verhandel. Kon. Akad. Wetensch. Amsterdam,
vol. 15, no. 3, 1875, p. 14 (Ternate; Sangi);
Atlas Ichth. Ind. Néerland., vol. 9,
1877, pl. (2) 392, fig. 6. $\frac{1}{m}$ Macleay,
Proc. Linn. Soc. New South Wales, vol. 4,
1879, p. 62 (Solomon). $\frac{1}{m}$ Meyer, An.

— Fowler, Journ. Bombay Nat. Hist. Soc., vol. 33, no. 1, p. 109, Sep. 30, 1928 (Bombay); Proc. Acad. Nat. Sci. Philadelphia, vol. 86, p. 443, no. 6, 1934 (off Natal; Durban Bay from ctenophore).

Soc. Españ. Hist. Nat. Madrid, vol. 14, 1885 (North Celebes; Tabuluan). $\frac{1}{3}$

Jordan and Evermann, Bull. U.S. Fish Comm., vol. 23, pt. 1, 1903 (1905), p. 254

(compiled). $\frac{1}{3}$ Evermann and Seale, Bull. Bur. Fisher., vol. 26, 1906 (1907),

p. 87 (Zamboanga). $\frac{1}{3}$ Weber, Siboga Exped., Fische, vol. 57, 1913, p. 294 (Siau,

Salibabu, Saleyer, Binongka). $\frac{1}{3}$ Herre and Montalban, Philippine Journ. Sci., vol. 36, no. 1, May 1928, p. 135, pl. 1,

fig. 3 (Zamboanga and Tambogon Island).

$\frac{1}{3}$ Fowler, Mem. Bishop Mus., vol. 10, 1928, p. 234 (New Guinea, Hilo, Johnston Island).

J. Schmidt, Bull. Acad. Sci. URSS., 1930, p. 547 (Okinawa).

Mulloidis vanicolaris Schmeltz, Cat. Mus.

Godeffroy, no. 1, 1864, p. 8 (South Seas); no.

1865, p. 6 (South Seas).

Psephenus natalensis Gilchrist,

Ann. Mag. Nat. Hist., ser. 9, vol.
9, p. 250, ~~1922~~ fig. 1 (oesophageal
teeth), 1922 (type locality,
Natal).

aa.
~~xx~~' Teeth evenly villiform
in jaws; lower gill rakers

20. atrogaster

aa.
~~xx~~'² Inner row of teeth
in each jaw little enlarged,
also lower lateral teeth;
lower gill rakers 12.

apogonoides

aa.² Small black, round
caudal spot.

bb.' no black spot each
side of occiput.

cc.
~~xx~~' Black rostral bar
includes chin, faint on
postocular, not reaching
body.

dd.' narrow black line
along second dorsal
base to tips of last
rays; upper membranes

Psenes africanus Gilchrist and Van Bende, Fisher. Marine Biol. Surv., Rep. no. 3, no. 4, p. 8, pl. 18, fig. 1, 1922 (1924) (type locality, off South Africa, in 23 to 33 fathoms; Amatekulu River, N. ~~W.~~ by ~~W.~~ ~~by~~ ~~W.~~ $\frac{3}{4}$ W., 12 miles, 26 fathoms; Tugela River, N. by W., 18 miles, 55-46 fathoms; Deloga Bay, 48 fathoms; Mossel Bay, 16 fathoms).

Sparus britannus Lacépède, Hist. nat. Poiss., vol. 4, 1802, pp. 41, 132. Mauritius.

Gerres oblongus (not Cuvier) Bleeker, Nat. Genees. Arch. Nederl. Indië (Bijdr. Tijds. Batavia), vol. 2, 1845, p. 521 (Batavia).

Gerres equula Schlegel, Fauna Japonica, Poiss., pts. 5-6, 1844, p. 76, pl. 40, fig. 1.

^{Richardson} Ichth. China Japon., 1846, p. 239 (Canton; seas of China).
^{on} Nagasaki, Verhandl. Batav. Genootsch.

(Halez. Ichth. Japan), vol. 25, 1853, p. 13; ⁱⁿ Bleeker,

~~opcit.~~ (Halez. Ichth. Japan), vol. 26, 1857, pp. 5, 94 (Nagasaki); Act. Soc.

Sci. Ind. Néerl. (no. 3), vol. 3, 1857-58, p. 5 (Japan).

Eucinostomus equula Jordan and Snyder,

Annot. Zool. Japon., vol. 3, 1901, p. 81 (Nagasaki).

910

Depth $2\frac{1}{4}$ to $2\frac{3}{5}$; head $2\frac{3}{4}$ to $3\frac{1}{8}$,
width 2 to $2\frac{1}{5}$. Snout $3\frac{3}{4}$ to $3\frac{4}{5}$
in head from snout tip; eye $2\frac{3}{4}$
to $3\frac{7}{8}$, equals snout, $1\frac{1}{3}$ to $1\frac{2}{3}$
in interorbital; maxillary
reaches $\frac{4}{5}$ to eye to $\frac{1}{4}$ in eye,
expansion 3 to $3\frac{2}{3}$, length $3\frac{3}{5}$
to $3\frac{2}{3}$ in head from snout tip;
interorbital $2\frac{3}{5}$ to 3, greatly
elevated convexly. Gill rakers
9 or 10 + 14 or 15, lanceolate, $3\frac{1}{3}$
in gill filaments or $\frac{1}{3}$ of eye.
Scales 42 to 44 in lateral
line; 5 above, 17 below, 12
predorsal forward to occiput.
Scales narrowly imbricated on
sides of body. Scales with 3 or 4
basal radiating striae; circuli
20 to 40.

911

D. X or XI, I, 15, I to 18, I, fifth spine 2 in head, first ray $2\frac{3}{5}$ to $2\frac{4}{5}$; A. III, 14, I or 15, I, third spine $5\frac{1}{4}$, first branched ray $2\frac{3}{4}$ to $2\frac{4}{5}$; caudal 1 to $1\frac{2}{5}$, deeply forked; least depth of caudal peduncle $4\frac{1}{2}$ to $4\frac{4}{5}$; pectoral 1 to $1\frac{1}{3}$; ventral $1\frac{3}{5}$ to $2\frac{1}{3}$.

Deep drab gray to bester, pale to silvery white below. Fins and head largely brown. Iris deep gray or silvery white. Spinous dorsal gray/black. Soft dorsal slate, paler basally. Anal brownish basally, edge whitish. Caudal gray, edges paler all around. Pectoral pale brown, paler below. Ventral gray, medially, edges white. South Africa, Natal, Zululand, Persian Gulf, India.

(912)

A. N. S. P., one example. Richard's
Bay, Natal. 1922. H. W. Bell Marley.
Length 65 mm.

A. N. S. P., three examples. Bombay
1925, Prof. F. Hallberg. Purchased.
Length 160 to 182 mm.

Pseudupeneus chrysopleuron Snyder,
Proc. U. S. Nat. Mus., vol. 32, 1907, p. 95
(Wakanoura and Tokyo). ¹ Franz,
Abhandl. Kais. Bayer. Akad. Wiss.,
vol. 4, supplement band 1, 1910, p. 48
(Yokohama).

Mullus dubius Schlegel, Fauna Japonica,
Poiss., pts. 2-4, 1843, p. 30, pl. 11, fig. 3.
Japan.

Upeneus dubius Bleeker, Verhandl.
Batavia. Genootsch. (Nal. Dicht. Japan),
vol. 25, 1853, p. 11. ¹ Günther, Cat. Fishes
Brit. Mus., vol. 1, 1859, p. 411 (compiled).
¹ Bleeker, Nederland. Tijdschr. Dierk.,
vol. 4, 1873, p. 142 (Hong Kong); Verhandl.
Konig. Akad. Wetensch. Amsterdam, ^(Japan) vol.
18, 1879, p. 9 (reference). ¹ Jordan
and Snyder, Annotat. Zool. Japon, vol.
3, 1901, p. 84 (Nagasaki).

913

Psenes regulus Poey

Psenes regulus Poey, Repert. Hist. Nat. Cuba, vol. 2, p. 375, 1868 (type locality, Cuba). — Jordan and Evermann, Bull. U. S. Nat. Mus., No. 47, pt. 1, p. 951, 1896 (copied). — Regan, Ann. Mag. Nat. Hist., ser. 7, vol. 10, p. 127, 1902 (copied Poey). — Jordan, Evermann, Clark, Rep. U. S. Comm. Fisher., pt. 2, p. 268, 1928 (1930) (reference).

Psenes maculatus (not Lütken)
Goode and Bean, Oceanic Ichth.,
p. 221, pl. 63, fig. 229, 1895.

Depth $1\frac{7}{8}$; head $2\frac{3}{4}$, w. $1\frac{4}{5}$.

Snout $3\frac{3}{4}$ in head; eye $3\frac{1}{4}$, slightly greater than snout, $1\frac{1}{5}$ in interorbital; maxillary reaches opposite front eye edge, length $3\frac{1}{5}$ in head; interorbital $2\frac{4}{5}$, convexly elevated; preopercle edge greatly convex. Gill rakers $4 + 12$, lanceolate, short, $\frac{1}{3}$ of gill filaments, which $1\frac{2}{3}$ in eye.

Scales 34 in lateral line to caudal base; 6 above, 13 below, 10 predorsal forward opposite eye center; 5 rows on cheek to preopercle angle. Caudal base scaly, other fins naked. Lateral line complete, reaches middle of caudal base. Scales simple, adherent, with 9 or 10 complete circuli.

D. XI, I, 15, I, spinous fin height 2 in head, soft anal height $2\frac{1}{3}$; A. III, 15, I, soft fin height $2\frac{2}{3}$; caudal $1\frac{1}{8}$, forked; least depth of caudal peduncle $4\frac{3}{4}$; pectoral $1\frac{3}{4}$, rays I, 17; ventral rays I, 5, fin $1\frac{2}{3}$ in head, innermost ray with broad membrane basally.

Pale brown on back, sides and below largely whitish with silvery tints. Rather large scattered dark brown spots scattered on back and sides, of which 3 along base of soft dorsal, ^{and 2 at spinous dorsal base.} dark band transversely across interorbital, continued down as dark blotch on cheek. Spinous dorsal and ventral membranes largely brown.

916

Fins otherwise largely pale or whitish.

Cuba.

U. S. N. M., No. 39329. Lat. $32^{\circ}24'$ N., long. $76^{\circ}55'30''$ W. Albatross Collection (160a). Length 58 mm. As Prenes maculatus. The figure as published under this name by Goode and Bean shows the scales before and above the ventral too small.

Papyrichthys J.L.B. Smith

Papyrichthys J.L.B. Smith, Trans.
Roy. Soc. South Africa, vol.
22, pt. 1, p. 93, 1934 (Type
Psephenus pellucidus Lütken).

916a

Papyrusrichteys

~~Leptopoma~~ new genus

Body oblong ovate, deepest at front of second dorsal, well compressed. Head moderate, compressed. Snout short, obtuse. Eye moderate, advanced in head, without adipose lids. Mouth small, front tip of lower jaw slightly below level of eye. Maxillary reaches eye. Teeth in jaws uniform, small, simple, uniserial, none on palate or tongue. Rami of mandible well elevated inside mouth. Interorbital low. Lower gill rakers 17. Scales very small, minutely papillate. Lateral line complete, high, concurrent with dorsal profile of back, reaches middle of caudal base. Along

918

each upper and lower submarginal
part of tail, long pellucid or ^{semi-}
transparent elongate area,
at intersections of interradial
bones with neural and haemal
elements of vertebrae; lower
area broader and therefore
more extensive. First dorsal
equally high as or higher than
second, in which rays 30 or
more. Anal like second
dorsal. Caudal forked.
Paired fins subequally long
or ventrals long as head.

Type Psenes pellucidus Lüthen.

This well marked genus
differs entirely from Psenes
in its minute scales, long
ventrals and semi-transparent
areas on the body. Apparently
a single species. P. pellucidus (Lüthen).

~~Papyrichthys~~

Prænes pellucidus (Lütken)

719

Prænes pellucidus Lütken, Spolia
Atlantica, p. 516, fig. 601, 1880
(type locality, Surabaya Strait,
Java).

— Regan, Ann. Mag. Nat. Hist.,
ser. 7, vol. 10, p. 125, August 1902
("Atlantici") (compiled). — Fowler,
Proc. Acad. Nat. Sci. Philadelphia,
vol. 86, p. 443, 1934 (reference).

Papyrichthys pellucidus J. L. B. Smith,
Trans. Roy. Soc. South Africa, 22, pt.
1, p. 94, pl. 6, fig. a, 1934 (Durban,
Natal).

Prænes edwardsii Eigenmann, Bull.
U. S. Fish Comm., 21, p. 35, fig.,
1901 (1902) (type locality, under a
medusa 30 miles south of Newport,
Rhode Island).

and Port Taufiq, Suez Canal). $\frac{1}{m}$
Fowler, Mem. Bishop Mus., vol. 10,
1928, p. 225 (Suva, Moen, Truk,
Tonga, Guam).

Perres ovena Kent, Great Barrier Reef,
1893, p. 369 (Queensland). (Error.)

Diapterus oyena Bleeker, Atlas Ichth.
Ind. Néer., vol. 8, 876-77, p. 129, pl.
(77) 361, fig. 5 (Sumatra, Nias, Singapore,
Java, Cocos, Madura, Bali, Celebes,
Timor, Ternate, Buru, Amboina, Banda).

Xystaema oyena Kendall and Goldborough,
Mem. Mus. Comp. Zool., 26, 1911, p. 292
(Suva, Tongatabu, Guam, Truk, Moen).

$\frac{1}{m}$ Fowler, Copeia, no. 58, June 18, 1918, p.
64 (Philippines). $\frac{1}{m}$ Barnard, Ann.

South African Mus., vol. 21, pt. 2, 1927,

Depth $1\frac{4}{5}$ to $2\frac{1}{10}$; head $2\frac{4}{5}$ to $2\frac{7}{8}$. Snout 3 to $3\frac{3}{4}$ in head from snout tip; eye 3 to $3\frac{2}{3}$, greater than snout in young to $1\frac{1}{8}$ in snout with age, subequal with interorbital in young to $1\frac{1}{4}$ in interorbital with age, maxillary reaches $\frac{1}{3}$ in eye in young, to front eye edge with age, length $2\frac{1}{3}$ to $2\frac{3}{4}$ in head; interorbital $3\frac{1}{4}$ to $3\frac{3}{4}$, moderately low, convex; preopercle edge convex. Gill rakers 5 + 17, lanceolate, $1\frac{1}{4}$ in gill filaments, which $1\frac{3}{5}$ in eye.

Scales about 140 in count along lateral line to caudal base; 15 scales above, 50 below, about 12 obsolete forward on predorsal opposite hind eye edge. Head largely scaly, muzzle and interorbital naked. Tubular

921

scales in lateral line to caudal base. Soft vertical fins minutely scaled basally.

D. XI, I, 29 or 30, spinous fin height $1\frac{7}{8}$ to 2 in head, soft fin height $1\frac{2}{5}$ to $1\frac{7}{8}$; A. III, 30, soft fin height $1\frac{1}{2}$ to $1\frac{4}{5}$; least depth of caudal peduncle $3\frac{1}{3}$ to 4; caudal $1\frac{1}{8}$ to $1\frac{1}{5}$, well forked, lobes broad, rounded with age; pectoral $1\frac{1}{3}$ to $1\frac{2}{5}$, rays I, 19; ventral I, 5, $2\frac{2}{3}$ to $3\frac{2}{5}$ in fish without caudal, inner ray rather broadly joined by membrane with belly.

Largely light brown, with silvery reflections on sides and below. Iris whitish. Membranes of spinous dorsal and ventrals dark or blackish brown. Soft dorsal and anal with submarginal

922
and darker subbasal longitudinal
band on membranes of fins.

Caudal and pectoral pale.

East Indies, Western North
Atlantic, South Africa.

U. S. N. M., no. 38172. Lat. $36^{\circ}47'$
N., long. $73^{\circ}25'W$. Albatross
Collection. Length 45 to 52 mm.
Four examples.

U. S. N. M., no. 38192. Lat. 36°
 $45'W$. $74^{\circ}28'30''W$. Albatross Collection
Length 34 to 78 mm. Five examples.

U. S. N. M., no. 49745. Thirty
miles south of Newport, R. I.
July 28, 1900. Grampus Collection.
Length 88 mm. Type of Prenes
edwardsii.

U. S. N. M., no. 83793.
Albatross Collection (2711). Length
18 to 43 mm. Four examples.

U. S. N. M., no. 83794.
Albatross Collection (2742). Length
20 mm.

U. S. N. M., no. 83795.
Albatross Collection. 1883. Surface.
Length 33 mm.

U. S. N. M., no. 84508.

Albatross Collection. 811 Surface 962.

Length 13 to 50 mm'. Eight examples.

D. XI, I, 32. A. III, 30.

Genus Seriollella Guichenot

Seriollella Guichenot, ^{Hist.} Fauna Chile,
Gay, ~~Peces~~ ^{vol. 2,} ~~1847,~~ ^{1848,} p. 238, (Type
Seriollella porosa Guichenot,
monotypic.)

heptomenus Günther, Cat. Fish.
Brit. Mus., vol. 2, p. 389, 1860.
(Type heptomenus brama Günther,
monotypic.)

heptonemus ~~McCulloch~~, Castelnau, Proc. Zool.
~~Acclimat. Soc. Victoria~~, vol. 1, p. 118, 1879,
~~June 29, 1929.~~ (Type heptonemus
brama Günther,) (~~Error.~~)
virtually as heptonemus Castelnau
error for heptonemus Günther.)

Case 129

Gerres oyena (Forsk.)Labrus oyena Forsk., Descript. Animal., 1775, p. 35. Suez and Djedda. $\frac{1}{m}$ Bonnaterre, Tabl. Ichth., 1788, p. 107(Suez). $\frac{1}{m}$ Gmelin, Syst. Nat. Linn.,vol. 2, pt. 2, 1789, p. 1287 (Arabia). $\frac{1}{m}$ Lacépède, Hist. Nat. Poiss., vol. 3, 1802, pp. 425, 462 (Arabia).Amaris oyena Rüppell, Atlas Reise nördl. Afrik. Fische, 1828, p. 11, pl. 3, fig. 2 (Red Sea).Gerres oyena Cuvier, Hist. Nat. Poiss., vol. 6, 1830, p. 472 (Mauritius; Red Sea). $\frac{1}{m}$ Jenyns, Zool. Voyage Beagle, Fish., vol. 4, 1842, p. 59 (Keeling Islands). $\frac{1}{m}$ Günther, Cat. Fishes Brit. Museum, vol. 1, 1859, p. 353 (no locality); vol. 4, 1862, p. 261 (Amboyna). $\frac{1}{m}$ Guichenot, Notes Ile Réunion, vol. 2, 1862, p. 25. $\frac{1}{m}$ Playfair,

Body oblong or ovate, compressed.
 Mouth moderate. Premaxillaries
 scarcely protractile. Maxillary
 with small supplemental bone,
 slips its entire length under
 preorbital. No teeth on palate.
 Opercular bones thin, entire or
 with minute denticulations. Gill
 membranes united far forward,
 free from isthmus. Gill rakers
 long. Pseudobranchiae reduced
 and fleshy with age. Branchio-
 tegals 5 to 7. Scales small, deciduous.
 Upper surface of head with spongy,
 porous integument. Lateral line
 extends high, concurrent with
 dorsal profile. Vertebral 24. Dorsals
 confluent, ^{short} spines 8, rays 27 to 40.
 Anal spines 3, rays 19 to 24. Caudal
 forked or emarginate. Pectoral
 rays 21 or 21.

Analysis of Species

- a.¹ Seriolella. D. VIII, 38 to 40; conspicuous pores on body.
- b.¹ Depth 4 to 4½. porosa.
- b.² Depth 3½ to 3¾. punctata.
- a.² Heptomenus. D. VIII, 27 to 31;
- c.¹ Depth 3.
- d.¹ Snout long as moderate eye. violacea.
- d.² Snout shorter than large eye. velaini.
- e.² Depth 2½ to 2¾. brama.

Seriolella porosa Guichenot

Seriolella porosa Guichenot, Hist. Chile, Gay, Zool., vol. 2, p. 239, 1848; Atlas, pl. 7, fig. 2, 1854 (type locality, Valparaiso). — Günther, Cat. Fish. Brit. Mus., vol. 2, p. 467, 1860 (copied). — Hutton, Trans. New Zealand Inst., vol. 8, p. 211, 1875. — Vaillant, Mus. Sci. Cap Horn, Zool., vol. 6, p. C. 29, 1888 (Orange Bay). — Berg, Anal. Mus. Phac. Buenos Aires, vol. 4, p. 35, 1895. — Delfin, Cat. Peces Chile, p. 52, 1901 (Concepcion Bay). — Regan, Ann. Mag. Nat. Hist., ser. 7, vol. 10, p. 128, 1902 (Australia; New Zealand; Chili; Patagonia).

23862 to 23864. Rapu Rapu Island.
June 22, 1909. Length 64 to 72 mm.

1 example. Rasa Island, Mantaguin
Bay, Palawan. Length 36 mm.

19824 and 19825. Romblon. March 26,
1908. Length 39 to 70 mm. 31 examples.

10 examples. Romblon Harbor. March
25, 1908. Length 47 to 58 mm.

22897. Romblon Reef. March 25, 1909.
Length 64 mm.

23565 to 23568. Romblon Reef. March 26,
1908. Length 42 to 59 mm.

14059 to 15777. Sacol Island, east of
Zamboanga. September 9, 1909. Length
53 to 63 mm.

Heptomenus dobula Günther, Proc.
Zool. Soc. London, p. 429, 1869.
(type locality, Tasmania). —

Seriotelella dobula McCulloch,
Austral. Mus. Mem., no. 5, pt. 1,
p. 124, June 29, 1929 (reference).

Pseudupeneus chrysopleuron (Schlegel)

Mullus chrysopleuron Schlegel, Fauna
japonica, Poiss., pts. 2-4, 1843, p. 29, pl.
12, fig. 1. Japan.

Upeneus chrysopleuron Richardson, Ichth.
China Japan, 1846, p. 219 (China). ¹/_m

Bleeker, Verhandl. Batavia. Genootsch.
(Nal. Ich. Japan), vol. 26, 1854, pp. 4, 70
(Nagasaki); Act. Soc. Sci. Ind. Neerland.,
(no. 3), vol. 3, 1857-58, p. 5 (Japan). ¹/_m

Günther, Cat. Fishes Brit. Mus., vol. 1,
1859, p. 410 (China). ¹/_m

Elera, Cat. Fauna
Filipinas, vol. 1, 1895, p. 481 (Samar,
Villa Real). ¹/_m

Jordan and Snyder,
Annotat. Zool. Japon., vol. 3, 1901, p. 84
(Nagasaki).

Depth 4 to 4 1/2; head 3 1/2 to 4.

Snout longer than eye; eye 4 to 5 in head; maxillary reaches below front eye edge; interorbital 3 1/4 in head. Gill rakers 14 below, nearly long as gill filaments.

D. VII, I, 37 to 40, third to fifth spines longest, 1/2 of eye, front soft rays 3/5 of head; A. III, 23 or 24; caudal widely forked; pectoral nearly long as head, ventral half as long.

Back and sides blue gray, silvery below. Fins and upper surface of head reddish brown or yellowish brown. Length 480 mm. (Regan.)

Tasmania, New Zealand, Chili, Patagonia.

and body to caudal base; least depth of caudal peduncle 2 to $2\frac{2}{5}$ in total head length; pectoral $1\frac{1}{4}$ to $1\frac{1}{3}$; ventral $2\frac{1}{5}$ to $2\frac{1}{4}$ in combined head and body to caudal base.

Brown generally, general color more or less uniform. Side of head and breast with silvery reflections. Rather broad deep brown margin to hind opercle edge. Broad blackish brown band from spinous dorsal base down to postventral region, border of each scale broadly darker and contrasted with pale brown center to form more or less reticulate pattern. Tail marked with many round brown

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Seriolella punctata (Schneider)

Scomber punctatus Schneider, Syst. Ichth. Bloch, p. 37, 1801 (type locality, New Zealand).

Gasterosteus punctatus (Forster) Schneider, Syst. Ichth. Bloch, p. 37, 1801 (name in synonymy).

Seriolella punctata Waite, Rec. Canterbury Mus., vol. 1, p. 231, pl. 51, 1911.

— McCulloch, Zool. Res. Endeavour, vol. 1, pt. 1, p. 36, pl. 10, fig. 1, Dec. 22, 1911 (Port Stephens; Newcastle; Victoria; Oyster Bay, Tasmania); Austral. Mus. Mem., no. 5, pt. 1, p. 124, June 29, 1929 (reference); Fishes New South Wales, ed. 3, p. 42, ~~pl.~~ pl. 16, fig. 153 b, 1934.

14660, 14661, 23246. Bolalo Bay, Palawan Island. December 21, 1908. Length 60 to 67 mm.

16278, 16280, 23340 to 23343, 23375, Biri Channel. June 1, 1909. Length 47 to 77 mm. 18 examples.

23764. Biri Channel. June 2, 1909. Length 50 to 78 mm.

8489 to 8493. Catbalogan, Samar Island. April 16, 1908. Length 72 to 84 mm.

11 examples. Endeavor Strait, north west coast of Palawan. December 22, 1908. Length 40 to 68 mm.

16314. Endeavor Strait. December 23, 1908. Length 74 mm.

14106 and 14107. Endeavor Strait. December 24, 1908. Length 72 to 74 mm.

Heptomenus bilineatus Hutton,
Trans. New Zealand Inst., vol. 5,
p. 261, pl. 8, fig. 31a, 1872 (1873)
(type locality, Wellington Harbour).

Seriolella bilineata Regan,
Ann. Mag. Nat. Hist., ser. 7, vol.
10, p. 128, 1902 (New Zealand).

spots about size of pupil, those antero-medianly and at caudal base more or less fused. Spinous dorsal and ventrals blackish, other fins more or less brownish, caudal edged above and below with little deeper also basally little darker. Iris pale yellowish to neutral gray or dusky brown.

East Indies, Philippines.

Depth $3\frac{1}{3}$ to 4; head $3\frac{2}{5}$ to $3\frac{3}{4}$.
 Snout $3\frac{2}{5}$ in head; eye $4\frac{4}{5}$ to $5\frac{1}{2}$;
~~subequal with~~ ^{$1\frac{4}{5}$ in} snout; maxillary
 reaches to or beyond front eye
 edge, length 3 in head;
 interorbital $3\frac{1}{4}$. Lower gill
 rakers 12, $\frac{2}{3}$ of gill filaments.

D. VI or VII, 34 to 39, fourth
 spine $\frac{2}{3}$ of eye, front lobe of
 soft dorsal $2\frac{3}{4}$ in head; A.
 III, 22 to 24, front lobe of soft
 anal $3\frac{1}{2}$; caudal 1, well forked,
 least depth of caudal peduncle
 4 to $4\frac{1}{2}$; pectoral $1\frac{1}{5}$; ventral
 $2\frac{1}{2}$.

Back and sides pale violet,
 silvery below. Many small round
 spots on body along median line,
 large dark mark behind head near
 base of lateral line, which deeper
 than broad. Dark vertical bar
 across eye. Dorsals, anals and
 pectorals dusky, especially marginally.

Caudal and ventrals paler. Length
280 mm. (Regan, McCulloch.)
New South Wales, Victoria,
Tasmania, New Zealand.

Seriolella
heptonemus brama (Günther) 935

heptonemus brama Günther,
Cat. Fish. Brit. Mus., vol. 2,
1860, p. 390 (type locality,
New Zealand). — Johnston,
Proc. Roy. Soc. Tasmania, pp. 85,
120, 1882 (1883) (Oyster Bay).

Seriolella brama Regan, Ann.
Mag. Nat. Hist., ser. 7, vol. 10, p.
129, 1902 (Australia; New Zealand).
— Waite, Rec. Canterbury Mus., ^{vol. 1}
no. 3, p. 229, pl. 50, 1911.

— McCulloch, Zool. Res. Endeavour,
vol. 1, pt. 1, p. 34, pl. 9, fig. 1. Dec.
22, 1911 (Spencer Gulf; 40 miles
west of Kingston; off Flinders
Island; Oyster Bay); Austral. Mus.
Mem., no. 5, pt. 1, p. 124, June 29, 1929
(reference); Fishes New South Wales,

Melanichthys Schlegel, Fauna
Japonica, Poiss., pts. 5-6, 1844, p. 75,
pl. 39. Nagasaki Bay.

Crenidens leoninus Richardson, Ichth.
China Japan, 1846, p. 242. Canton.

Girella leonina Jordan and Starbuck,
Proc. U. S. Nat. Mus., vol. 32, 1907, p. 498,
fig. 4 (Wakanoura specimen).

Melanichthys crenidens Bleeker, Act.
Soc. Sci. Indo-Néerland. (Zeed. bijdr.
visch. Japan), vol. 8, 1860, p. 76. Japan.

Girella punctata (part) Jordan and
Snyder, Annotat. Zool. Japon., vol. 3,
1901, p. 80 (Nagasaki).

Depth $2\frac{1}{3}$ to $2\frac{2}{5}$; head $3\frac{1}{3}$ to $3\frac{1}{2}$,
width $1\frac{4}{5}$ to $1\frac{7}{8}$. Snout 3 to $4\frac{1}{2}$ in
head; eye 3 to 4, greater than snout
in young to $1\frac{2}{5}$ with age, greater than
interorbital in young to $1\frac{1}{4}$ with age;
maxillary reaches $\frac{4}{5}$ to eye, $\frac{1}{5}$ in

ed. 3, p. 42, pl. 16, fig. 153a, 1934.

heptanepus^{m m} travale Castelnau,
Proc. Zool. Acclimat. Soc. Victoria,
vol. 1, (1872) p. 119 (type locality,
Melbourne market).

Fishes of Zanzibar, 1866, p. 111 (Aden; Zanzibar). ¹/_m Klunzinger, Verh. zool. bot. Gesell. Wien, vol. 20, 1870, p. 772 (Kosair, Red Sea). ¹/_m Day, Fishes of India, pt. 1, 1875, p. 99, pl. 25, fig. 4 (Mangalore). ¹/_m Castelnau, Res. Fishes Australia (Victoria Office Rec. Philadelphia Exhib.), 1875, p. 1 (Queensland coast). ¹/_m Kossmann and Räuber, Zool. Ergebn. K. Acad. Wiss. Berlin, vol. 1, 1877, p. 12 (Red Sea). ¹/_m Kossmann, Zoolog. Anzeiger, vol. 2, 1879, p. 22 (Red Sea). ¹/_m Klunzinger, Sitz. Ber. Akad. Wiss. Wien, math.-naturw. Klasse, vol. 80, pt. 1, 1879, p. 353 (Port Darwin). ¹/_m Günther, Rep. Voyage Challenger, vol. 1, 1880, p. 34 (Kandavu) p. 58 (Tongatabu). ¹/_m Pöhl, Cat. Mus. Godeffroy, no. 9, 1884, p. 28 (Uvaou). ¹/_m Klunzinger, Fische Roth. Meer., 1884, p. 49, pl. 5, figs. 1-d. ¹/_m Meyer, Anal. Soc. Españ. Hist. Nat. Madrid, vol. 14,

Depth ?; head $2\frac{1}{2}$?, width 2.
 Snout $3\frac{1}{4}$ in head from snout tip; eye 6, hind edge little advanced in head length; maxillary reaches eye, expansion $2\frac{1}{4}$ in eye, length $3\frac{1}{8}$ in head from snout tip; teeth small, conic, simple, close set, uniform, uniserial in each jaw; palate and tongue toothless; interorbital $2\frac{7}{8}$, elevated convexly, gives off median ridge to occiput; preopercle broad, edge crenulated.

Scales $90 + 6$ in lateral line; 11 above, 14 to soft dorsal origin, 20 below, 24 predorsal. Scales with 3 or 4 + 33 to 83 circuli. Lateral line axial, straight from shoulder to caudal base medially.

D. VII, I, 26, third spine $1\frac{1}{5}$ in eye, first branched ray $2\frac{7}{8}$ in

total

938

head; A, $\overline{\text{II}}$, $\overline{\text{I}}$, 18, first branched ray $3\frac{3}{4}$; $\overline{\text{upper}}$ caudal lobe $1\frac{1}{3}$; pectoral $1\frac{3}{5}$; ventral $2\frac{2}{3}$.

Uniform dark brown, without dark markings. Apparently lower surface paler when fresh.

Victoria, Tasmania, New Zealand.

U.S.N.M., no. 83351. No locality [evidently New Zealand]. Length 610 mm. Top skinned out fish. Wilkes Exploring Expedition.

Seriolella violacea Guichenot

Seriolella violacea Guichenot,
~~Fauna~~ Hist. Chili, Gay, Peces, vol. 2,
~~1847~~, 1848, p.
 241, p. 7, fig. 1, 1848 (type locality,
 Valparaiso); Atlas, pl. 7, fig. 1,
 1854. — Günther, Cat. Fish. Brit.
Mus., vol. 2, p. 468, 1860 (copied).
 — Delfin, Cat. Peces Chili, p. 53,
 1901 (reference). — Regan, Ann.
Mag. Nat. Hist., ser. 7, vol. 10, p. 129,
 1902 (Chili). — Fowler, Proc. Acad.
Nat. Sci. Philadelphia, vol. 78,
 p. 278, 1926 (Valparaiso).

Cuv¹²⁹ Gerres kapas^p Bleeker

Gerres kapas Bleeker, naturk. Tijdschr.
Nederl. Indië, vol. 2, 1851, p. 482. Rio;
Batavia, Java.

Gerres kapas Bleeker, specit., vol. 3, 1852,
p. 161 (Timor Kupang). + Günther, Cat. Fishes

Brit. Mus., vol. 1, 1859, p. 352 (compiled); vol.
4, 1863, p. 259 (no locality). + Martens,

Preuss. Exped. Ost Asien, 1876, p. 387

(Bangkok). + Karoli, Termesz. Füzetek,
Budapest, vol. 5, 1881, p. 155 (Singapore).

+ Weber, Zool. Ergebn. Reise Niederl. Ost
Indien, vol. 3, 1894, p. 408 (river mouth at
Tallo, Celebes). + Elera, Cat. Fauna Filip.,

vol. 1, 1895, p. 477 (Luzon, Manila), p. 560

(Luzon, Manila, Samar). + Weber, Siboga

Exped., vol. 57, 1913, p. 271 (Kangeang). +

Fowler and Bean, Proc. U.S. Nat. Mus., vol.

62, 1922, p. 41 (Zamboanga; Philippines). +

Fowler, Proc. Acad. Nat. Sci. Philadelphia,

Heptomenus crassus Starks,
Proc. U. S. Nat. Mus., vol. 30, p.
784, fig. 8, 1906 (type locality,
Callao, Peru). — Evermann and
Kendall, Bull. U. S. Nat. Mus.,
no. 95, p. 57, 1917. (Callao; Mollendo).

17335, 23951 to 23955. Isabela,
Basilan Island. September 11, 1909.

Length 68 to 72 mm.

5 examples. Oyster Inlet, Ulugan Bay,
Palawan Island. December 28, 1908.

Length 44 to 72 mm.

24091. Port Usan, west of Pinas Island.

December 17, 1908. Length 52 to 65 mm.

2 examples.

[815.] Anterior part of body, also head,
with yellowish olive shades. Spots
on posterior side bronze on pale ground
color. Black bar includes first
dorsal and ventral. Fins rather
olivaceous. Second dorsal, anal and
caudal dusky.

941

Depth 3 to $3\frac{1}{5}$; head $3\frac{1}{3}$ to $3\frac{1}{2}$, well compressed. Snout $3\frac{1}{6}$ to $3\frac{1}{5}$ in head from snout tip; eye 4 to $5\frac{2}{5}$, little behind last third in head; maxillary not quite reaching eye, length $3\frac{3}{4}$ in head from snout tip; interorbital 3 to $3\frac{1}{8}$, convex; hind preopercle very minutely serrate.

Scales 80 in lateral line to caudal base; 14 above, 20 below. Slight keel along side of caudal peduncle. Suprascapula entire.

D. V or VI, I, 25 to II, 27; soft dorsal inserted nearer snout tip than last dorsal ray base, front rays slightly elevated; A. II, 19, inserted opposite base of thirteenth dorsal ray; caudal well forked, lobes sharp pointed. least depth of caudal peduncle

$3\frac{3}{4}$ in total head; pectoral $1\frac{1}{4}$, very attenuate; ventral $2\frac{2}{5}$, inserted slightly before pectoral.

Brown, paler below.

Coasts of Chile and Peru.

Heptomacrus crassus Starks

appears to be synonymous. It shows:

Depth $3\frac{1}{2}$; head 3 to $3\frac{1}{4}$. Snout $3\frac{4}{5}$ to $4\frac{1}{6}$ in head from snout tip; eye 5 to $5\frac{1}{4}$, $1\frac{1}{5}$ in snout; maxillary reaches eye, length $3\frac{1}{2}$ in head from snout tip; interorbital 3 to $3\frac{1}{5}$, broad and evenly convex.

Lower gill rakers 15, $\frac{1}{2}$ of eye.

Scales 87 to 97 in lateral line; 13 above, 22 below, 7 rows across cheek. Lateral line axial, complete.

D. VII, I, 27, front fin height $2\frac{3}{4}$ in total head length; A. II, 21,

943
front fin height $3\frac{1}{3}$; caudal 1,
deeply forked; least depth of
caudal peduncle 5; pectoral 1,
rays II, 21; ventral $2\frac{1}{4}$.

Dusky above, top of head
black. Sides and lower parts
silvery white. Sides of head
with small dark brown dots.
Vertical fins dusky. Dorsals
darker than anal. Pectoral
slightly dusky, darker inside,
axil dark brown. Length 340mm.

Seriolella velaini Sauvage

Seriolella velaini Sauvage, Arch.
Zool. Expér., vol. 8, (1879) p. 32 (type
locality, St. Paul Island, southern
Indian Ocean). — Regan, Ann.
Mag. Nat. Hist., ser. 7, vol. 10, p. 130,
1902 (copied).

1 example. Cabungao River, Catanduanes Island. June 9, 1909. Length 44 mm.

4 examples. Mahinog, Camiguin Island, in brackish water. August 3, 1909.

Length 61 to 80 mm.

3 examples. Malcochin Harbor, Linapacan Island. December 1908. Length 75 to 78 mm.

6 examples. Mantacao Island, west coast of Bohol Island. April 8, 1908. Length 55 to 118 mm.

6 examples. Port Natalvi, Luzon. November 23, 1908. Length 85 to 97 mm.

1 example. Port San Vicente, Luzon. November 18, 1908. Length 99 mm.

5055. Sandakan, Borneo. February 29, 1908. Length 194 mm.

5077. Sandakan. March 1, 1908. Length 203 mm.

Depth 3; head $3\frac{3}{4}$. Snout less than eye; eye $3\frac{1}{2}$ in head, less than interorbital; maxillary reaches below front eye edge.

Scales 90. Lateral line following dorsal profile.

D. VIII, 27, spines subequal, short, $\frac{1}{2}$ of eye, soft fin low and first rays sometimes little higher than others; A. III, 20, emarginate, front rays twice long as last; caudal deeply emarginate; pectoral falciform, long as head; ventral less than half of pectoral and inserted below them.

Color? Length 690 mm. (Regan.)

St. Paul Island.

2 rows on cheek. Tubercles in lateral line large, simple, well exposed, without basal scale; ^{scales with} 10 to 11 basal radiating striae; 77 to 113 apical denticles with 2 to 4 transverse series of basal elements; ~~anterior~~ circuli fine.

D. VI - I, 9, I, second spine little enlarged though third longest or $1\frac{1}{8}$ to $1\frac{1}{4}$ in total head length, front dorsal rays elongated and end in filaments apparently in males or ^{first} $1\frac{1}{4}$ to 2 in combined head and body to caudal base; A. II, 9, I, second spine $1\frac{1}{2}$ to $1\frac{2}{3}$ in total head length, first branched ray $1\frac{1}{5}$ to $1\frac{1}{4}$; caudal rather deeply emarginate, lobes pointed, 2 to $2\frac{1}{2}$ in combined head

Genus Psenopsis Gill

Psenopsis Gill, Proc. Acad. Nat. Sci. Philadelphia, (March 1862, p. 127.)
(Type Trachinotus anomalus Schlegel, monotypic.)

Parapsettus Steindachner, Ann. Naturh. Hofmus. Wien, vol. 11, (1896, p. 211, (Type Trachinotus anomalus Schlegel, monotypic.))

Girella ramsayi Macleay, Proc. Linn. Soc. New South Wales, vol. 5, pt. 3, Feb. 1881, p. 409. Port Jackson. ¹/₂ Lucas, Proc. Roy. Soc. Victoria, series 2, vol. 2, 1890, p. 20.

? Girella carbonaria de Vis, Proc. Linn. Soc. New South Wales, vol. 8, pt. 2, July 17, 1883, p. 283. Moreton Bay, Queensland.

Girella mentalis de Vis, ^{Proc. Linn. Soc. New South Wales} ~~op. cit.~~, vol. 8, pt. 2, July 17, 1883, p. 284. Moreton Bay.

Aplodon margaritifera (Auguste Duméril) Thomiot, Bull. Soc. Philomath., Paris, series ⁷ ~~7~~, vol. 7, ^{June 23} 1883, p. 142. Port Phillip, Melbourne. ^{Bull. Soc. Philomath. Paris}

Aplodon castelnani Thomiot, ~~op. cit.~~, series ⁷ ~~7~~, vol. 7, ^{June 23} 1883, p. 142. Australia.

Aptodon sulcatus (Guichenot) Thomiot, ^{Bull. Soc. Philomath. Paris} ~~op. cit.~~, series ⁷ ~~7~~, vol. 7, ^{June 23} 1883, p. 143. Port Phillip. (misprint.)

Body deeply ovoid, compressed.
 Head moderate. Snout obtuse.
 Eye little advanced or premedian
 in head. Mouth small. Maxillary
 reaches below eye, without
 supplemental bone, slips below
 preorbital. Jaws about equal.
 No teeth. Opercles thin, entire or
 minutely denticulated. Gill rakers
 rather long. Gill membranes joined
 far forward, free from isthmus.
 Pseudobranchiae glandular.
 Branchiostegals 7. Vertebrae 24.
 No air bladder. Pyloric caeca
 arborescent. Scales moderate,
 very deciduous. Lateral line
 concurrent with profile of back.
 Dorsal spines 5 to 9, rays 24 to 30.
 Dorsal and anal alike, little
 higher anteriorly, without lobes.
 Anal spines 3, rays 22 to 26.

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Caudal forked. Pectoral moderate.

Ventral small, below pectoral or slightly before pectoral.

Species two, in India, China and Japan.

fal puce

Depth 3 to $3\frac{1}{8}$; head $3\frac{1}{4}$ to $3\frac{1}{3}$, width $2\frac{1}{8}$ to $2\frac{1}{4}$. Snout $3\frac{2}{3}$ to $3\frac{3}{4}$ in head; eye $4\frac{7}{8}$ to $5\frac{1}{2}$, $1\frac{1}{4}$ to $1\frac{1}{3}$ in snout, 1 to $1\frac{1}{4}$ in inter-orbital; maxillary reaches $\frac{4}{5}$ in eye, expansion $1\frac{2}{5}$ in eye, length $2\frac{1}{3}$ in head; jaws even or lower trifle shorter; narrow bands of villiform teeth in jaws, outer upper and inner lower little enlarged; interorbital $4\frac{3}{4}$ to $4\frac{7}{8}$, broadly convex; preopercle edge denticulate. Gill rakers $7+13$, lanceolate, equal gill filaments or $1\frac{2}{5}$ in eye; 3 or 4 above and below rudimentary.

Scales 50 in lateral line to caudal base and 25 more out over caudal fin; 9 above, 10 below; 24 predorsal scales to occiput and 23 more forward to snout tip; 16 rows across cheek; soft dorsal and anal with fine scales in basal sheaths and few others on membranes basally; caudal largely covered with fine scales. Scales with 9 to 12 basal radiating striae; 45 to 47 apical denticles, with 12 or 13 transverse series of basal elements; circuli fine.

fal

D. I, I, 29, I or 30, I, third spine $1\frac{3}{5}$ to $1\frac{7}{8}$ in head, first ray $2\frac{2}{3}$ to $2\frac{4}{5}$; A. II, 7, I, second spine $1\frac{4}{5}$ to $2\frac{1}{8}$, first ray $1\frac{3}{4}$ to $1\frac{4}{5}$; caudal $1\frac{1}{4}$ to $1\frac{2}{5}$, cuneate; least depth of caudal peduncle $3\frac{1}{5}$ to $3\frac{1}{4}$; pectoral $1\frac{1}{2}$ to $1\frac{3}{5}$; ventral $1\frac{1}{2}$ to $1\frac{3}{5}$.

Drab or lavender-brown above, below whitish, most everywhere with silvery white reflections. Iris whitish. Dorsals and caudal pale brownish, membranes of former dusky though each with dark basal spot to spine or ray and subbasally on soft dorsal pale broad area whole length of fin. Front anal rays little darker than rest of fin. Otherwise fins whitish, most all spines burnished with silvery white.

Mozambique, Madagascar, India, Ceylon, Pinang, East Indies, Philippines, Indo China, China, Queensland. Barnard says: "It is doubtful whether Fowler's description applies to the true spidado. He gives the number of gill rakers as 15, and there are several other points of difference between his

Prenopsis anomala (Schlegel)

Trachinotus anomalus Schlegel,
Fauna Japonica, Poiss., pts. 5-6,
1844, p. 107, pl. 57, fig. 2 (type
locality, Seas of Japan).

14349, Limbones Cove, Manila Bay,
Luzon. February 8, 1909. Length 95 to
142 mm. L1116 ♀. Top of head and
back greenish, rest of body pearly.
Cross bars blackish. Dusky of
fins very dark brown or blackish.

7466. Maculabo Island, east coast
of Luzon. June 14, 1909. Length 124 mm.

23304 and 23305. Machesi Island,
vicinity eastern Palawan. April 5, 1909.
Length 112 to 125 mm.

25. Malapascua Island, north of
Cebu. March 16, 1909. Length 136 mm.

12134. Malcochin Harbor, Tinapacan
Island, Tinapacan Strait. December
19, 1908. Length 104 mm.

12350, 16400, 16401. Mansalay,
Mindoro. June 4, 1908. Length 120 to
140 mm.

Psenes anomalus Bleeker, Naturk.
Tijds. ned. Indie, vol. 6, (1854) p. 409,
 (Nagasaki); Verh. Batavia. Genoot.
 (hal. Ichth. Japan.), vol. 26, (1857)
 pp. 5, 104 (Nagasaki); Act. Soc.
Sci. Ind. Neerl., vol. 3, no. 3, 1857-
 58, p. 6 (Japan); ned. Tijds. Dierk.
 vol. 4, (1873 (1874)) p. 133 (reference).

— Günther, Cat. Fish. Brit. Mus.,
 vol. 2, p. 495, 1860 (copied).

— Martens, Preuss. Exped. Ost Asien,
 vol. 1, p. 391, 1876 (Yeddo; Yokohama).

— Steindachner and Döderlein, Denks.
Abad. Wiss. Wien, math.-naturw. Kl., vol.
 49, pt. 1, p. 182, 1885 (Tokio).

Psenopsis anomalus Gill, Proc.
Acad. Nat. Sci. Philadelphia,
 (May 1862) p. 127 (reference). —

Jordan and Snyder, Annot. Zool.
Japan., vol. 3, (1901) p. 70 (reference).

Depth $2\frac{1}{2}$ to $2\frac{3}{4}$; head $3\frac{1}{8}$ to $3\frac{1}{3}$, width 2 to $2\frac{1}{10}$. Snout 3 to $3\frac{1}{4}$ in head; eye $2\frac{7}{8}$ to 3, greater than snout in young to equal with age, greater than interorbital in young to $1\frac{1}{3}$ with age; maxillary reaches $\frac{1}{5}$ to $\frac{1}{4}$ in eye, expansion $2\frac{1}{3}$ to $3\frac{1}{2}$ in eye, length $2\frac{1}{2}$ to $2\frac{7}{8}$ in head; interorbital $2\frac{7}{8}$ to 3, slightly convex. Gill rakers 6 + 7, short points, $2\frac{1}{4}$ in gill filaments, which $\frac{1}{2}$ of eye.

Scales ~~32~~ to 43 in lateral line to caudal base and 3 to 5 more on latter; ~~5~~ to 7 above, ^{or 11} 10 below, 22 to 24 predorsal forward nearly to nostrils leaving broad scaleless premaxillary groove at front of interorbital; 3 or 4 rows on cheek to preopercle ridge. Scales with 7 to 9 basal radiating striae and many as 6 incomplete

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Psenopsis anomala Regan, Ann.
Mag. Nat. Hist., ser. 7, vol. 10, p. 131,
1902 (Japanese seas). — Jordan
and Richardson, Mem. Carnegie
Mus., vol. 6, no. 4, p. 181, Aug. 28,
1909 (Takao, Formosa). — Snyder,
Proc. U. S. Nat. Mus., vol. 42, p. 412,
1912 (Tokyo). — Jordan, Tanaka,
Snyder, Journ. College Sci. Tokio,
vol. 33, p. 136, 1913 (reference). —
Jordan and Metz, Mem. Carnegie
Mus., vol. 6, no. 1, p. 27, June 1913
(Fusan, Korea). — Jordan and
Thompson, Mem. Carnegie Mus.,
vol. 6, no. 4, p. 241, Sep. 1914 (Shimon-
oseki). — Izuka and Matsumura,
Cat. Zool. Spec. Tokyo Mus., Vertebr.,
p. 156, 1920 (Tokyo).

— Jordan and Hubbs, Mem. Carnegie Mus., vol. 10, no. 2, p. 226, June 27, 1925 (Kagoshima Bay; Kochi; Tokyo; Mikawa Bay; Misaki; Misazu; Yamada). — Fowler, Proc. Acad. Nat. Sci. Philadelphia, vol. 81, p. 604, 1929 (Hong Kong). — Herre and Myers, Lignan Sci. Journ., vol. 10, nos. 2-3, p. 250, Aug. 1931 (Hong Kong). — Anonymous, Illustrat. Jap. Aquat. Animal., vol. 1, pl. 30, fig. 1, 1931.

Trachinotus melo Richardson, Ichth.
China and Japan, (1846) p. 270 (type
locality, Canton; China seas; Macao).

Trachinotus melo Günther, Cat. Fish.
Brit. Mus., vol. 2, (1860) p. 485 (copied).

Crenidens triglyphus Richardson, Voy.
Erebus and Terror, Ichth., 1844-48,
p. 36, pl. 25, fig. 2, Port Jackson, Australia.

Crenidens simplex Richardson, ^{Voy. Erebus and Terror,} ~~op. cit.~~,
^{Schreb.} 1844-48, p. 120. Port Jackson. $\frac{1}{m}$

Steindachner, Sitz. Ber. Akad. Wiss. Wien,
Math.-Naturwiss. Classe, vol. 56, pt. 1,
1867, p. 323, pl. 1, fig. 3 (lower jaw)
(Cape York).

Girella simplex Günther, Cat. Fish. British
Mus., vol. 1, 1859, p. 429 (Sydney, Port
Jackson, Moore's Bay). $\frac{1}{m}$ Klunzinger, Archiv
Naturgesch., vol. 38, pt. 1, 1872, p. 22
(Murray River and Bass Strait). $\frac{1}{m}$

$\frac{1}{m}$ Kner, Reise Novara, Fische, 1865, p. 75
(Australia).

Hector, Trans. New Zealand Institute,
vol. 9, 1877, p. 468, pl. 8, fig. 6c. $\frac{1}{m}$
Schmeltz, Cat. Mus. Godeffroy, no. 7, 1879, p. 40 (Sydney). $\frac{1}{m}$
Klunzinger, Sitz. Ber. Akad. Wiss. Wien,
Math.-Naturwiss. Classe, vol. 80, pt. 1, 1879.

Depth ⁹/₁₀ 2 to 2 1/2; head 3 1/3 to 3 3/5,
width ~~2~~ ^{1 3/5} to 2 4/5. Snout ^{3 4}/₅ to 4 2/5
^{slightly greater to}
on head; eye 3 to 4 2/5, greater
than to equal to snout, greater
than interorbital to 1 3/4 in
interorbital; maxillary reaches
^{or to}
1/5 to ~~1/4~~ in eye, narrow, length
2 3/4 to 3 1/4 in head; interorbital
2 2/5 to 4 1/8, but slightly convex.
Gill rakers ^{6 to} 8 + 12, lanceolate,
^{1 to 2} 1 1/5 in gill filaments, which ^{12 to} 1 2/3
in eye.

Scales caducous, very minute.
Lateral line only distinct anteriorly,
concurrent with back, complete.

D. ~~VII~~ to IX, 28, I to 30, I, third
branched ray ^{13 to} 2 in total head
length; A. ^{24 to} III, I, third branched
ray 1 2/3 to 2 ³/₄; caudal equals head,
2 3/4 in rest of fish; least depth
of caudal peduncle ³/₄ 2 4/5 to 3 in

head; pectoral 1 to $1\frac{1}{8}$; ventral
 $2\frac{1}{5}$ to $2\frac{1}{2}$ in total head, spine $\frac{2}{5}$ of fin.

Deep drab to smoky or mouse
 gray above, with silvery reflections.
 Silvery white below. Fins gray
 brown. Dorsals, anals and
 paired fins with slate gray to
 blackish. Iris pale.

China, Korea, Japan.

U. S. N. M., no. 49465. Tokyo, Japan.
Albatross Collection. Length 180 mm.

U. S. N. M., no. 59618. Matsushima
 Bay, Japan. Dr. H. M. Smith.
 Length 180 mm.

U. S. N. M., no. 71131. Tokyo, Japan.
Albatross Collection. Length 204 mm.

A. N. S. P., two examples. Hong
Kong. April 1929. Henry W. Fowler.
Length 105 to 190 mm.

Pentapus trivittatus (not BLOCH) FOWLER, Mem. Bishop Mus., vol. 10, 1928, p. 217 (Shortland Island). p. 217

Pentapodus trivittatus FOWLER, Proc. Acad. Nat. Sci. Philadelphia, 1929 (1930), p. 642 (Shortland Island example).

Depth $3\frac{1}{10}$ to $3\frac{1}{4}$; head $3\frac{1}{8}$ to $3\frac{1}{4}$, width $1\frac{7}{8}$ to $2\frac{1}{8}$. Snout $2\frac{3}{4}$ to $3\frac{1}{4}$ in head; eye 3 to $3\frac{3}{4}$, greater than snout in young to $1\frac{2}{5}$ with age, greater than interorbital in young to $1\frac{1}{4}$ with age; maxillary reaches to or $\frac{1}{8}$ in eye, expansion $2\frac{1}{2}$ to $3\frac{4}{5}$ in eye, length $2\frac{3}{5}$ to $2\frac{7}{8}$ in head; teeth fine, in villiform bands of 4 or 5 irregular series anteriorly in jaws and outer enlarged row above, also 4 outer front curved upper canines and larger one flaring out each side, anteriorly below; lower teeth with enlarged outer row only after canines where soon replacing villiform teeth; interorbital $3\frac{1}{4}$ to 4, broadly and slightly convex; preopercle edge entire; opercle with small flat spine. Gill rakers 5 + 5, short spinescent tubercles, about $\frac{2}{5}$ of gill filaments, which $2\frac{1}{2}$ in eye.

Scales 41 to 44 in lateral line to caudal base and 1 or 2 more on latter; 3 or 4 above, 10 or 11 below, 27 to 33 predorsal nearly forward to nostrils; 11 rows on cheek, of which 5 on preopercle flange. Suprascapula minutely ctenoid. Scales with 7 to 9 basal radiating striae; 67 to 150 apical denticles, small, short, with 1 or 2 transverse series of basal elements; circuli very fine.

D. X, 9, I, fourth spine $2\frac{1}{10}$ to $2\frac{1}{8}$ in head, sixth ray $1\frac{7}{8}$ to 2; A. III, 7, I, third spine $2\frac{1}{3}$ to $3\frac{1}{5}$, first ray 2 to $2\frac{1}{4}$; least depth of caudal peduncle $2\frac{2}{5}$ to $2\frac{1}{2}$; pectoral $1\frac{1}{4}$ to $1\frac{2}{5}$; ventral $1\frac{1}{5}$ to $1\frac{2}{5}$; caudal $2\frac{4}{5}$ to $3\frac{1}{10}$ in combined head and body to caudal base, deeply emarginate and lower lobe little shorter.

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Genus Bathyseriola Alcock

Bathyseriola Alcock, Ann. Mag.
Nat. Hist., ser. 6, vol. 6, p. 202,
1890. (Type Bathyseriola cyanea
Alcock, monotypic.)

g.² Dorsal spines 6.

r.¹ Five longitudinal dark bands.

s.¹ Median dark lateral band reaches caudal base where broken as 2 small dark spots.

s.² no dark caudal spot.

compressa
margaritophora

r.² Three dark brown longitudinal bands; spinous dorsal front dusky; dark subbasal band on soft dorsal; round black caudal spot.

r.³ Two dark brown longitudinal bands, upper parallel with lateral line, lower horizontal from eye to caudal; round black basal caudal spot.

amboinensis

Body fusiform, much compressed.
 Head large, compressed, with
 well developed mucous cavities.
 Snout rounded. Eye moderate,
 well advanced. Maxillary reaches
 below eye. Jaws with narrow
 bands of villiform teeth.
 Nostrils large, together near
 upper tip of snout. Preopercle
 entire. Gill opening wide,
 membranes only united
 anteriorly. Gill rakers long,
 close set, acute. Pseudobranchiae
 fleshy. Branchiostegals 7. No
 air bladder. Pyloric coeca
 numerous. Vertebrae 24, of
 which 14 caudal. Scales small,
 deciduous, cycloid. Lateral
 line high, arched with dorsal
 profile: One dorsal, with low
 feeble spines, posterior graduated
 upward to soft lobe. Soft

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dorsal long, like anal, opposite.
Caudal forked. Pectoral moder-
ate. Ventral short, joined by
membrane to belly.
One species.

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Bathyseriola
~~Mesobius~~ cyanea Alcock

Bathyseriola cyanea Alcock, Ann.
Mag. Nat. Hist., ser. 6, vol. 6,
(1890) p. 202 (type locality, off
Madras Coast, lat. $18^{\circ}30'$ W, long.
 $84^{\circ}46'$ E, in 98 to 102 fathoms);
ser. 6, vol. 8, (1891) p. 23, Bengal
Bay, 240 to 276 fathoms; Journ.
Asiat

— Goode and Bean, Oceanic Ichth.,
1895, pp. 220, 521 (reference). —
Alcock, Journ. Asiatic Soc. Bengal,
vol. 65, pt. 2, p. 315, 1896 (reference);
Illust. Zool. Investigator, pt. 5,
pl. 18, fig. 1, 1898; Cat. Deep Sea Fish.
Indian Mus., p. 43, 1899 (above
materials).

22648. Basud River, Luzon.

January 15, 1909. Length 68 mm.

22746. Capunuyugan, Mindanao.

May 9, 1908. Length 68? mm.

1 example. Buena Vista, Guimaras

Island. January 14, 1909. Length 67 mm.

7 examples. Cuyo, Island. April 9, 1909.

Length 49 to 109 mm.

5 examples. Davao, Mindanao. May

16, 1908. Length 83 to 115 mm.

10 examples. East side Tagbilaran Channel,

Bohol Island. April 9, 1908. Length 22 to 76 mm.

30 examples. Guijilagan, Negros.

April 2, 1908. Length 24 to 55 mm.

23 examples. Malcochin Harbor, Linacapan

Island. December 1908. Length 69 to 145 mm.

5 examples. Mansalay, Mindoro. June 4,

1908. Length 49 to 78 mm.

17 examples. Mantacao Island, west

coast of Bohol Island. April 8, 1908. Length

Psenopsis cyanea Regan, Ann.
Mag. Nat. Hist., ser. 7, vol. 10,
p. 131, 1902 (off Ganjam and
Godavari, 240 to 276 fathoms).

stripe at caudal base, aroubiensis

n.² Dark bands narrower than light interspaces, not connivent at caudal base. novemfasciata

k.³ Body with 4 dark brown or blackish lateral longitudinal bands, median separated from round black median spot on caudal peduncle at caudal base. doederleini

k.⁴ Body with 3 dark brown or dusky ~~basal~~ lateral longitudinal bands and small black basal caudal spot just above middle of lateral line at caudal base. fusca

k.⁵ Body with 2 brown or dusky longitudinal bands on deep rose green ground color, lower reaches caudal medianly, but without dark basal caudal spot.

o.¹ Dark median line from snout

962

Depth $3\frac{1}{3}$; head $2\frac{3}{4}$, Snout $4\frac{2}{3}$
in head; eye 5, $1\frac{1}{8}$ in snout;
maxillary reaches $\frac{2}{5}$ in eye,
length $30\frac{1}{3}$ in head; interorbital
wider than eye, convex.

Scales small (not given).

D. VIII or IX, last spine
subequal with first ray 3 in
head; A. III, 22, first branched
ray $3\frac{1}{8}$; caudal $9\frac{1}{2}$, well forked,
least depth of caudal peduncle
 $4\frac{1}{4}$; pectoral $1\frac{3}{4}$, rays 22;
ventral I, 5, fin $3\frac{1}{5}$ in head,
inserted before pectoral origin.

Bluish black, with uneven
silvery sheen. Length 175 mm.
(Alcock.)

India.