

Additions to the Fish Fauna of Prov. Tosa, Japan

By

Toshiji KAMOHARA

(Zoological Laboratory, Liberal Arts Faculty, Kochi University)

Many tropical shore fishes are taken in Prov. Tosa, as the Kuro-Shiwo flows near its coast. With advancing knowledge, the fish fauna of the province will be seen to be linked with those of the Riû Kiû Islands, the East Indies, Africa, and Australia to the west and south, and with those of the Hawaiian Islands and Polynesia to the south-east.

The collections here noticed embrace 24 species of shore fishes from Prov. Tosa; the majority of which were obtained at Okinoshima, about 130 km west of Kôchi City. The remaining few were collected at the Urado and Mimase Markets in Kôchi City, the Susaki Market, Usa and Kashiwajima near Okinoshima in 1951. All these species had not been known from the province.

**1. *Anchoviella pseudoheteroloba* (Hardenberg) (Engraulidae) New Japanese name :
Ohaguro-katakuchi**

Stolephorus pseudoheteroloba Hardenberg, Nat. Tijdschr. Ned. Indie, vol. 93, pt. 2, 1933, p. 261. Riouw and Lingga Archipelago; Moluccas.

D. 15; A. 16; gill-rakers on first arch 14+23. Head 3.7 (young)-4.6 in length; depth 5.1-5.4; eye 3.6 in head. Scales very deciduous, 40 in lateral series. Snout somewhat shorter than eye-diameter; maxillary reaches far behind below posterior margin of eye. Origin of dorsal slightly nearer to first rays of caudal than to snout tip; origin of anal midway between pectoral base and caudal base.

Color in formalin pale yellowish; breadth of silvery lateral band about equal to length of snout. Black spot on occiput; back and caudal fin powdered with brown; other fins hyaline.

Three specimens, 79 to 134 mm long, from Susaki. A rare East Indian species now made known from Japan for the first time.

Distrib.- Java; Moluccas.

Length- Up to 134 mm.

**2. *Gymnothorax undulatus* (Lacépède) (Muraenidae) Japanese name: Nami-utsubo
Muraenophis undulata Lacépède, Hist. Nat. Poiss., V, 1803, 629, 644. South Seas.**

Head 2.2-2.3 in trunk; head and trunk a little shorter than tail; eye 1.7-2.2 in snout; snout 5.1-6.1 in head, elongate, bluntly pointed, not projecting beyond mandible. Dorsal beginning much nearer to corner of mouth than to gill-opening.

Color pale brownish, speckled, spotted and reticulated with whitish; vertical fins

narrowly margined with white posteriorly.

Here described from two specimens, 370 and 390 mm long, from Susaki; an another one, 340 mm long, obtained at Usa.

Distrib. - East Indies; New Guinea; Samoa; Hawaii; Okinawa; Kagoshima.

Length- Up to 900 mm.

3. *Parapegagus natans* (*Linnaeus*) (Pegasidae) New Japanese name: Yari-tengu

Pegasus natans *Linnaeus*, *Systema nat.*, 12th ed., 1766, p. 418. India.

Differs from the other species in the longer body. Tail composed of 12 rings, tapering and very much flattened behind; its length without caudal equal to distance between vent and end of snout. Snout prolonged into a long flat process, denticulated on the side. Back of body, dorsal and both surfaces of pectorals finely dotted with brown; tail with broad brown cross bands; both basal part and tip of caudal broadly adorned with blackish.

A single specimen, 79 mm long, from Usa. This species is a very unexpected and surprising addition to the fish fauna of Prov. Tosa.

Distrib. - China; East Indies; India; northern Australia; Samoa.

Length- Up to 182 mm.

4. *Myripristis intermedius* (*Günther*) (Holocentridae) Japanese name: Sumitsuki-matsukasa

Myripristis murdjan var. *intermedia* *Günther*, *Mus. Godeffroy, Jour.*, vols. 2-3, pts. 5-6, 1874, p. 92. South Sea.

This form differs from *Myripristis murdjan* (*Forsk.*) chiefly in the presence of a black blotch on tip of soft dorsal, anal and each lobe of caudal. It is doubtful therefore if it can be regarded as a separate species.

A single specimen, 192 mm long, obtained by Mr. Ryôzaburo Nagano, student of the Kôchi University, at Urado Market in Kôchi City.

Distrib.- Samoa; Kingsmill; Harvey Islands; Tahiti; Galapagos Islands; Australia; Okinawa.

Length- Up to 230 mm.

5. *Apogon cyanosoma* *Bleeker* (Cheilodipteridae) Japanese name : Kinsen-ishimochi

Apogon cyanosoma *Bleeker*, *Nat. Tijds. Nederland. Indie*, vol. 5, 1853, p. 71. Lowajong, Solor Island.

D. VII-1,9; A. II,8; L.1. 23. Head 2.5-2.6 in length; depth 2.7-2.8; eye 2.6-3.1 in head; interorbital 4.2-4.4; snout 4.2-4.4; depth of caudal peduncle 2.3-2.4. Maxillary reaching to below middle of eye; lower jaw the longer, chin prominent. First dorsal spine minute, second one about half length of third; first anal spine also minute; caudal

incised, with rounded lobes.

Color pale yellowish generally, with silvery white sheen. Six longitudinal, golden bands on side of body; dorsals, caudal and anal reddish; the other fins pale.

Described from two specimens, 70 and 72 mm long, collected at Susaki Market.

Distrib.- Red Sea; Zanzibar; East Indies; Philippines; Riû-Kiû Islands.

Length- Up to 72 mm.

6. *Lutianus rufolineatus* (Cuvier & Valenciennes) (Lutianidae). New Japanese name: Kisuji-tarumi

DiaCOPE rufolineata Cuvier & Valenciennes, Hist. Nat. Poiss., vol.6, 1830, p. 531. New Guinea.

D. XI, 13; A. III, 8; tubular scales 50 in lateral line to caudal base; 8 rows above, 17 below; gill-rakers on first arch 6+13. Head 2.5 in length; depth 2.6; eye 3.7 in head; interorbital 4.6; snout 3.4; depth of caudal peduncle 3.1.

Preopercle with very deep notch and interopercle armed with strong spur. Eye-diameter little less than length of snout and slightly greater than interorbital space. Color rosy, below yellowish; about seven longitudinal yellowish red bands; pale brown blotch below anterior dorsal rays; fins yellowish.

A single specimen, 115 mm in length, from Susaki. The specimen agrees very well with the descriptions of other specimens, but has 6+13 gill-rakers on first arch instead of 7+15.

Distrib.- Andamans; East Indies; Philippines; Polynesia.

Length- Up to 220 mm.

7. *Aprion virescens* Cuvier & Valenciennes (Lutianidae) (Fig.1) New Japanese name: Ao-chibiki

Aprion virescens Cuvier & Valenciennes, Hist. Nat. Poiss., vol. 6, 1830, p. 544, pl. 168. Seychelles.

D. X, 11; A. III, 8; L.1. 50; gill-rakers on first arch 6+14. Head 2.9-3 in length; depth 3.7-3.8; eye 3.8-4.8 in head; interorbital 3; snout 2.5-2.8; depth of caudal peduncle 3.6-4.1.

Body slender fusiform; interorbital space flattish; maxillary reaching to below front-border of eye; eight transverse rows of scales on opercle. Teeth in jaws in villiform bands, the outer series enlarged; two strong canines in frontpart of upper and lower jaw. Pectoral short and rounded, much less than ventral; caudal deeply forked.

Color bluish brown, paler below; upper part of head blackish. Vertical fins light reddish brown; a series of black blotches at base of membrane between last five dorsal spines and first dorsal ray. Pectorals and ventrals yellowish.

Described from two specimens, 175 and 352 mm long, from Okinoshima.

Distrib.- Mauritius; Seychelles; Ceylon; East Indies; Queensland; Polynesia; Hawaii; Okinawa.

Length- Up to 720 mm.

8. **Hapalogenys mucronatus** (*Eydoux & Souleyet*) (Haemulidae) Japanese name: Setodai

Peristipoma mucronatum *Eydoux & Souleyet*, Voy. de la Bonite, Zool., 1841, p. 161, pl. 2, fig. 2. Macao, China.

Length of third dorsal spine 1.2 in head, much longer and stronger than fourth spine; barbels of chin remarkable; vertical fins margined with black.

One example, 105 mm long, from Mimase. Originally known from China and later from Korea and southern Japan, it is now reported from Prov. Tosa for the first time.

Distrib.- China; Korea; southern Japan.

Length- Up to 300 mm.

9. **Chromis isharae** (*Schmidt*) (Pomacentridae) Japanese name: Amami-suzume

Dascyllus isharae *Schmidt*, Trans. Pac. Comm. Acad. Sci. USSR, vol. 1. 1930, p. 67, fig. 2. Okinawa.

D. XIII, 14; A. II, 13; P. 18; scales in a longitudinal series 26; 3 above lateral line; gill-rakers on first arch 20+10. Head 3.5 in length; depth 1.9; eye 3 in head; interorbital 2.5; snout 4.1; depth of caudal peduncle 2.

Body very deep, compressed; preopercle entire; teeth minute, conical in two series; lateral line interrupted. Color in formalin violet brown, somewhat paler below; caudal peduncle, caudal, hind portions of soft dorsal and anal yellowish; upper and lower margins of caudal each with a narrow brown longitudinal band. Spinous dorsal, greater part of anal and ventrals blackish; pectoral grayish, with a large black blotch at the basal part.

A single specimen, 180 mm long, from Okinoshima.

Distrib.- Okinawa.

Length- Up to 180 mm.

10. **Abudefduf behni** (*Bleeker*) (Pomacentridae) Japanese name: Hirenaga-suzume

Glyphisodon Behni *Bleeker*, Verh. Bat. Gen. vol. 21, 1847, Labr. cten. p. 25. Java—

Glyphisodon xanthurus *Bleeker*, Nat. Tijds. Ned. Indie, vol. 5, 1853, p. 345. Amboina.

D. XIII, 11; A. II, 11; 3 scales above lateral line; gill-rakers on first arch 16+7. Head 3.4 in length; depth 2; eye 2.8 in head; interorbital 2.8; snout 4.1; depth of caudal peduncle 3.3.

Color in formalin uniform brownish. Along hind preopercle edge black vertical band, also hind edge of opercle dusky; posterior portions of soft dorsal and anal yellowish; a dark brown spot at base of pectoral superiorly; upper and lower parts of caudal broadly edged with brown.

A single specimen, 118 mm long from Okinoshima.

Features and coloration of my specimen largely agree with the description of *Abudefduf xanthurus* (Bleeker) given by Fowler & Bean (Smiths. Inst. U. S. Nat. Mus. Bull. 100, vol. 7, 1928, p.155) except for less number of dorsal and anal rays in my specimen. Judging from the description given by Weber (1940), it seems to me that *A. behni* (Bleeker) and *A. xanthurus* (Bleeker) are the same.

Distrib.- East Indies; Melanesia; Philippines; Formosa; Miyako Island.

Length- Up to 150 mm.

11. *Abudefduf leucogaster* (Bleeker) (Pomacentridae) Japanese name: Nami-suzume

Glyphisodon leucogaster Bleeker, Verh. Bat. Gen. XXI, 1847, Labr. eten. p.

26. Java.

D. XIII, 12; A. II, 11; L.1. 16+8; 3 scales above lateral line; gill-rakers on first arch 6+22. Ventrals with the first ray filamentous and reaching on anal, almost as long as pectorals; caudal deeply forked, the longest upper and lower rays filamentous.

Color gray brown; spinous dorsal and anal blackish except posterior part of the latter which is yellowish; soft dorsal and caudal yellowish; a black blotch at base of pectoral.

A single specimen, 145 mm long, from Okinoshima.

Distrib.- Red Sea; Zanzibar; India; Philippines; Amami-oshima; Miyakojima.

Length- Up to 145 mm.

12. *Pomacentrus miyakoe* (Okada & Ikeda) (Pomacentridae) Japanese name: Miyako-suzume

Abudefduf miyakoe Okada & Ikeda, Bull. Biogeograph. Soc. Japan, vol. 7, no.

7, 1937, p. 83, text-fig. 2; pl. VI, figs. 6 & 8. Miyako Island.

D. XIII, 15; A. II, 14; gill-rakers on first arch 5+12; tubes of scales in lateral line 18. Preopercle serrate. Color uniform dark brownish; all the fins dusky except pectoral which is pale yellowish brown. One olivaceous yellow cross band descends from tip of opercle to base of ventral. A dark blotch at base of pectoral; no spot at hind edge of opercle.

One specimen, 100 mm long, from Okinoshima.

My specimen agrees well with the original description and figures, but differs from the latter in having a larger number of dorsal and anal rays and no spot at hind edge of opercle. It will probably be a variant rather than a distinct species.

Distrib.- Miyako Island.

Length- Up to 1.0 mm.

13. *Coris gaimardi* (*Quoy & Gaimard*) (Labridae) Japanese name: Tsuyu-bera

Julis gaimard *Quoy & Gaimard*, Voy. Uranie, Zool., 1824, p. 265, pl. 54, fig.1.

Maui, Hawaiian Islands.-*Labrus formosus* *Bennett*, Fishes of Ceylon, 1834, p1.

16. Ceylon.-*Coris pulcherrima* *Günther*, Cat. Fish. Brit. Mus., vol. 4; 1862, p. 200. Amboyna, Tabitti, Aneiteum.

Color bluish brown generally. Posterior part of body with numerous blue spots. Dorsal and anal narrowly margined with brown, with 3 narrow dark marginal lines parallel with edges of fins. Caudal yellowish excepting the bluish base.

I have followed Fowler and Bean (1928) in the synonymy of this species. Two specimens, 211 and 232 mm long, from Okinoshima.

Distrib.- East Indies; Zanzibar; Micronesia; Hawaii; Riû Kiû Islands.

Length- Up to 300 mm.

14. *Thalassoma amblycephalus* (*Bleeker*) (Labridae) Japanese name: Kogashira-bera

Julis (Julis) amblycephalus *Bleeker*, Nat. Tijds. Ned. Indie, vol. 11, 1856, p. 683.

Ord, Malang, southwest Java.

D. VIII, 13; A. III, 11; scales in lateral line 21, 5+1; 3 scales above lateral line; gill-rakers on first arch 4+9. Head 3.4 in length; depth 4; eye 4.2 in head; snout 4.2.

Head scaleless; outer caudal rays produced. Color olive brown, pale below; each scale of body with dark vertical streak. A narrow blue dark-edged band from lower angle of orbit to axilla; a second across angle of preopercle; a triangular blackish spot in axil of pectoral, which is yellow with a brownish extremity. Dorsal dark anteriorly; the soft portion having a narrow white edge.

A single specimen, 96 mm long, from Okinoshima.

Distrib.- India; Micronesia; Polynesia; Riû Kiû Islands.

Length- Up to 108 mm.

15. *Labroides bicolor* *Fowler & Bean* (Labridae) (Fig. 2) New Japanese name : Some-wake-bera

Labroides bicolor *Fowler & Bean*, Smiths. Inst. U. S. Nat. Mus., Bull. 100, vol.

7, 1928, p. 224, pl. 18. Port Maricaban.

D. IX, 11; A. III, 10; 27 scales in a longitudinal series; 4 scales above lateral line. Head 3 in length; depth 3.8; eye 6.1 in head; interorbital 3.8; snout 3.1; depth of caudal peduncle 2.

Anterior half of body bluish black and posterior half abruptly yellowish. Soft dorsal

and anal broadly edged with bluish; caudal bluish, with a black submarginal crescent; pectoral and ventral grayish.

A single specimen, 120 mm long, from Okinoshima. My specimen differs from the original description and figure in the curvature of lateral line and coloration, but it will probably be a variant rather than a distinct species. This curious fish has hitherto been known only from the Philippines, and is now recorded for the first time from Japan.

Distrib.- Philippines.

Length- Up to 120 mm.

16. *Callyodon dubius* (Bennett) (Callyodontidae) Japanese name: Shirosuji-budai
***Scarus dubius* Bennett, Zool. Journ., vol. 4, 1828, p. 37. Hawaiian Islands.**

D. IX, 10; A. III, 9; scales in a longitudinal series 24; 2 scales above lateral line, 6 below; gill-rakers on first arch 23+32. Head 3.1 in length; depth 2.7; eye 7.4 in head; snout 2.5. Caudal somewhat emarginate, the upper and lower lobes produced. Color brownish, lighter below; a broad, irregularly shaped, longitudinal dark band on side of body; a brown band along base of pectoral.

A single specimen, 285 mm long, from Okinoshima. My specimen largely agrees with the description of *C. dubius* given by Fowler & Bean (1928), but differs from it in having a greater number of gill-rakers on first arch (18+22 in the latter). I have identified my specimen with this species with some doubts.

Distrib.- Mauritius to East Indies; China; Hawaii; Tahiti; Formosa; Yokohama.

Length- Up to 360 mm.

17. *Chaetodon kleini* Bloch (Chaetodontidae) Japanese name; Mizore-chôcôhuo.

***Chaetodon kleinii* Bloch, Naturg. Ausl. Fische, vol. 4, 1790, p. 7, pl. 218, fig. 2.**
East Indies.

D. XIII, 22; A. III, 18. Head 4.3 in length; depth 1.5; eye 2.7 in head; interorbital 2.7; snout 2.9; depth of caudal peduncle 2.1.

Color in formalin generally yellowish brown, deep yellowish posteriorly. Posterior half of body with scattered pale brown spots; diffuse brownish band extends from front dorsal spines down to base of ventral. Soft dorsal and anal each narrowly edged whitish, with narrow brownish submarginal line; caudal with broad gray posterior border; ventral blackish.

A single specimen, 98 mm long, from Okinoshima.

Distrib.- China; Africa; Queensland; Melanesia; Micronesia; Riû Kiû Islands.

Length- Up to 130 mm.

18. *Hepatus philippinus* *Herre* (Hepatidae) New Japanese name: Ohaguro-hagi
Hepatus philippinus *Herre*, Philip. Journ. Sci., vol. 34, no. 4, 1927, p. 434, pl. 5, fig. 1. Calapan, Mindoro.
 D. IX, 25; A. III, 24. Head 4 in length; depth 2.1; eye 4 in head; interorbital 2.7; snout 2.2; depth of caudal peduncle 2.8.
 Body elongate, ellipsoid-ovoid. Teeth with pointed, finely serrate tips; 8 on each side of upper jaw, 10 below (10 above and 12 to 14 below in the type). Caudal deeply lunate, tips elongate, the upper one narrow, pointed. Color uniform purplish brown; caudal pale brownish yellow; other fins black.
 My example agrees largely with *Herre's* description and figure excepting fewer teeth.
 A single specimen, 290 mm long, from Okinoshima. A very rare Philippine species now made known from Prov. Tosa for the first time.
 Distrib.- Philippines.
 Length- Up to 290 mm.
19. *Brachaluteres ulvarum* *Jordan & Snyder* (Monacanthidae) Japanese name: Aosa-hagi
Brachaluteres ulvarum *Jordan & Snyder* in *Jordan & Fowler*, Proc. U. S. Nat. Mus., 25, 1902, p. 271, fig. 5. Misaki, Sagami.
 One example, 75 mm long, from Susaki. I had long believed this species occurred in Tosa, and was therefore much pleased to collect it.
 Distrib.- Misaki, Sagami to Kishû.
 Length- Up to 75 mm.
20. *Pterois volitans* (*Linnaeus*) (Scorpaenidae) Japanese name: Hana-minokasago
Gasterosteus volitans *Linnaeus*, Systema nat., 10th ed., 1758, p. 296. Amboina.
 This species may be known by its very small scales, about 95 in lateral line.
 One specimen, 270 mm long, from Okinoshima.
 Distrib.- Red Sea; Cape of Good Hope, Queensland; Melanesia; Micronesia; Polynesia; China; Miyakojima; Ogasawara.
 Length- Up to 270 mm.
21. *Amblyapistus taenianotus* (*Cuvier*) (Scorpaenidae) New Japanese name: Tsumajiro-okoze
Apistes taenianotus *Cuvier*, Regne animal, 2nd ed., vol. 2, 1828, p. 168 (on Lacépède).
 D. XVII, 7; A. III, 5; P. 11; V. I, 5; ca 75 scales in a longitudinal series; gill-rakers

on first arch 1+5. Head 3 in length; depth 2.7; eye 3.5 in head; depth of caudal peduncle 3.3.

Upper (not lower) jaw slightly projecting; preorbital with 2 strong spines, posterior larger; preopercle edge with 5 spines, uppermost largest. In my specimen second dorsal spine broken off. Caudal ends in median point, median rays longest, subequals head. Color chocolate-brown; all the fins dusky, terminally with narrow white edges.

Narrow white margins of all fins serve to distinguish this species at once from any other member of the group known to me.

A single specimen, 94 mm long, from Okinoshima.

Distrib.- Mauritius; India; Melanesia; Polynesia.

Length- Up to 94 mm.

22. *Tridentiger trigonocephalus* (Gill) (Gobiidae) Japanese name: Shima-haze

Tridaenophorus trigonocephalus Gill, Ann. Lyc. Nat. Hist. New York, 1859, p. 18. China—*Tridentiger bifasciatus* Steindachner, Ichth. Beitr., X, 1881, p. 12, figs. 2 and 2a. Bay of Strielok near Vladivostock.

D. VI-13; A. 12; L.1. 55. Head 3.3 in length; depth 4.4; eye 4 in head; snout 4; depth of caudal peduncle 2. Interorbital width slightly less than diameter of eye; snout obtuse, nearly equals eye-diameter in length; maxillary extends beyond anterior margin of orbit. Head naked, nape scaly; scales ctenoid. Caudal obtusely rounded; ventrals terminate at some distance from vent. Two longitudinal dark bands on head and body sides distinct.

Described from a single specimen, 48 mm long, from Usa. I collected one more damaged specimen, 51 mm long, at this place. It is almost scaleless and was badly handled by the fisherman, so that it is in poor condition.

Distrib.- China north to Bay of Strielok near Vladivostock; Japan.

Length- Up to 95 mm.

23. *Synchirops shoe* Okada & Ikeda (Callionymidae) (Fig. 3) Japanese name: Kōwan-teguri

Synchirops shoe Okada & Ikeda, Bull. Biogeogr. Soc. Japan, vol. 7, no. 7, 1937, p. 90, fig. 4. Okinawa.

D. IV-8; A. 7; P. 19; V. 1.5. Head 3.7 in length; depth 5; eye 3.4 in head; snout 3.1; width of body at opercles 1.3. Color in formalin brownish, paler below; spinous dorsal grayish, with four ocelli and three oblique irregular brown bands at basal part of membrane between first and third dorsal spines.

A single specimen, 98 mm long, from Kashiwajima. My specimen differs from the

original description and figure only in color pattern.

Distrib.- Okinawa.

Length- Up to 98 mm.

24. *Alticus ellipes* (*Jordan & Starks*) (Blenniidae) Japanese name: Rōsoku-ginpō

Blennius ellipes *Jordan & Starks*, Proc. U. S. Nat. Mus., XXX, 1906, p. 702, fig. 9. Tanegashima.

Three specimens 40, 48 and 54 mm long respectively from Kashiwajima. Originally described from Tanegashima and widely distributed in Riū Kiū. Now reported for the first time from Prov. Tosa.

Distrib.- Tanegashima; Yakushima; Okinawa.

Length- Up to 70 mm.

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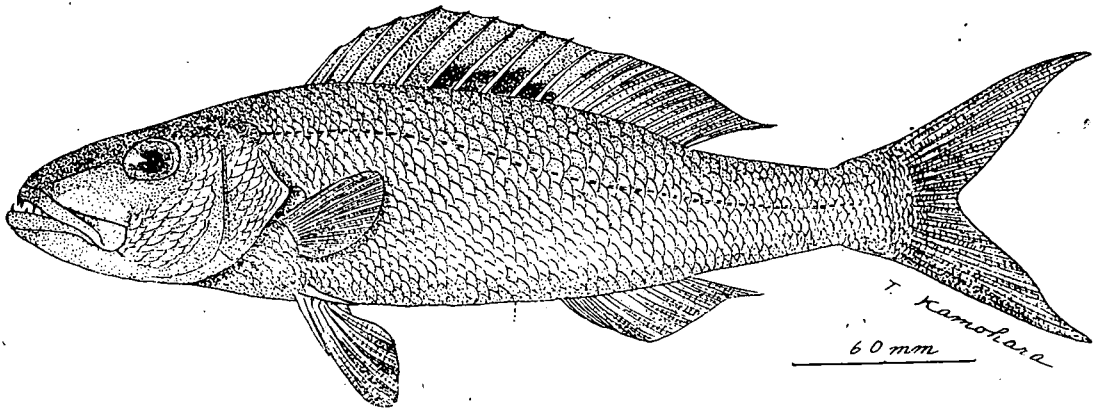


Fig. 1 *Aprion virescens* Cuvier & Valenciennes

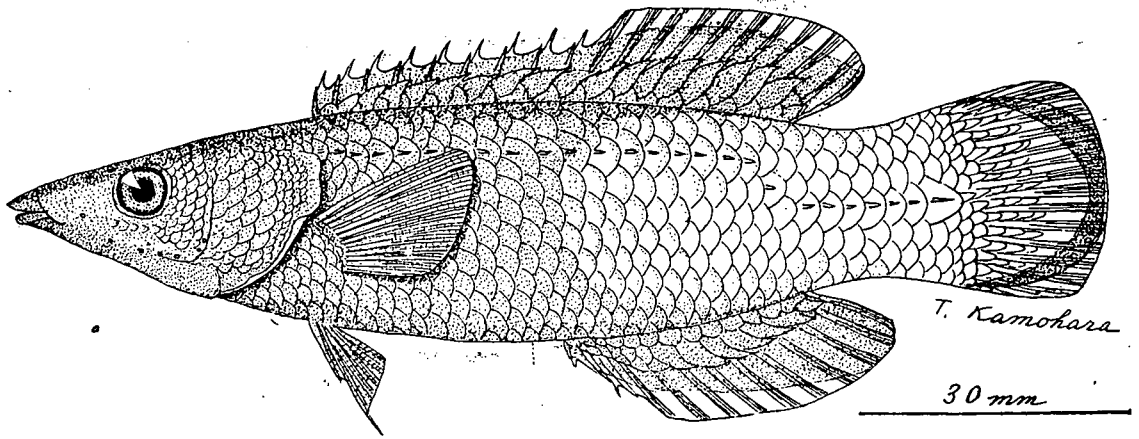


Fig. 2 *Labroides bicolor* Fowler & Bean

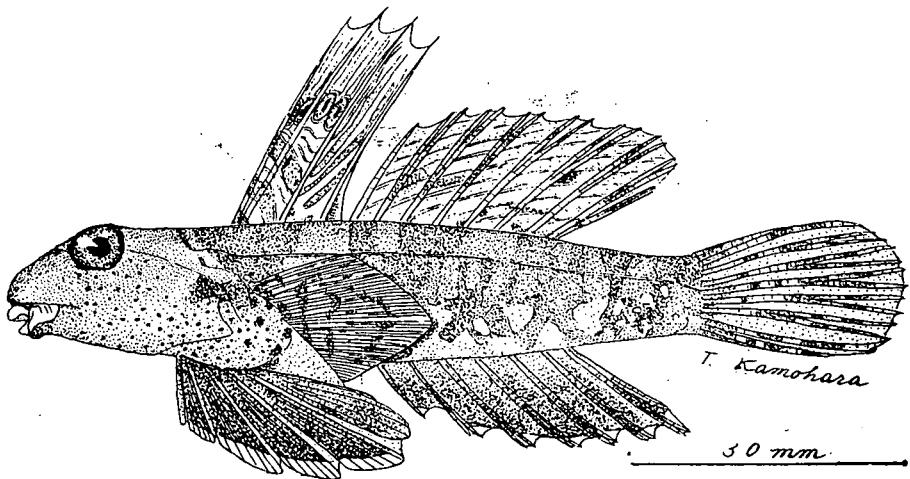


Fig. 3 *Synchirops shoe* Okada & Ikeda

