

DESCRIPTIONS OF NEW SPECIES OF FISHES FROM THE HAWAIIAN ISLANDS BELONGING TO THE FAMILIES OF LABRIDÆ AND SCARIDÆ.

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The fishes here described are part of three collections from the Hawaiian Islands. The largest collection, containing over 200 species, was made by me in 1889 under the generous auspices of De Pauw University. The second, of about 45 species, was obtained, under the direction of Dr. David Starr Jordan, by the United States Fish Commission steamer *Albatross* in 1896, on the return of the vessel from the work of the Fur Seal Commission of Investigation. The third contained some 80 species, and was made by Dr. Thomas Denison Wood, of Stanford University, in 1898, for the museum of the university. To this a small but valuable collection was added by his brother, Mr. A. B. Wood, of Honolulu, in 1899. A fuller account of these collections will appear in a subsequent paper. Of the 22 new species here described, 17 were first obtained by me in 1889 and 5 were first seen in Dr. Wood's collection.

With but one exception the fishes collected by me were examined in a fresh state and careful notes of the color were taken. Of the 5 from the collection made by Dr. Wood, all were seen after they had been in formalin for some weeks. While the markings were fairly well preserved, and in some cases brilliant coloration still remained, still the quickness with which the colors of these groups fade or change makes definite statements of color of these 5 species impossible.

In all 42 species of labroids and scaroids were obtained. The large percentage of these that appear to be new would indicate that these islands and their neighbors lying west and south form a most interesting field for the study of these forms. While this fauna has already received the attention of Bleeker, Günther (on Garrett's collections and drawings), Steindachner, and other ichthyologists, our knowledge of it is only in its beginning.

The fishes of these groups were mainly obtained from the market in Honolulu, which is supplied by the native fishermen. The species are all valued highly by the native Hawaiians as food, the scaroids especially so. Some small specimens of the latter bring large prices. They are eaten raw by the natives, as are most of the other fishes, cooking being regarded as especially inimical to the food qualities of a scaroid. The Honolulu fish-market is the richest source of the collector's material. Fishermen, who know the habits and haunts of these fishes, and who have great skill in catching them, are urged to bring them here by the high price and ready sale of these forms.

The types of these species are deposited in the museum of Leland Stanford Junior University. Series more or less complete are also placed in the De Pauw University museum, the United States Fish Commission, and the United States National Museum.

LIST OF SPECIES.

Macropharyngodon aquilolo Jenkins, new species. Native name, *Hinalea akilolo*, applied also to other fishes. Fig. 1.

Head with flap 3.33 in length of body to base of caudal; 4 in total; depth 2.5; in total 3. D. IX, 11. A. III, 11. Scales 2-28-10. Tubes two to three branched, or single. Head naked. Four front teeth in each jaw, strong, the second on each side of upper jaw turned backward, prominent posterior canines at each angle, two at one angle in one specimen.

General color in life a light-brown, sometimes darker; a very bright-blue spot on each scale, this spot with a black posterior border; five bright-blue lines on side of head running obliquely downward and forward; two parallel ones from eye to mouth, the third from just below lower border of eye to chin below angle of mouth, the remaining two lower; bright-blue spots and short lines on top of head and on opercle. The positions of these lines are constant in the five specimens examined. Dorsal and anal with three longitudinal series of bright-blue spots with black borders, the inner and middle series being large and distinct spots; anterior dorsal spot between first and third spines bright-scarlet, bordered below with bright-yellow, and below this with dark-green; pectoral plain-brown; ventrals bright-brown with about six transverse series of bright-blue ocelli; caudal with about five transverse series of bright-blue ocelli. The coloration is quite constant in the five specimens taken, varying only in darker or lighter shade of brown of the general color.

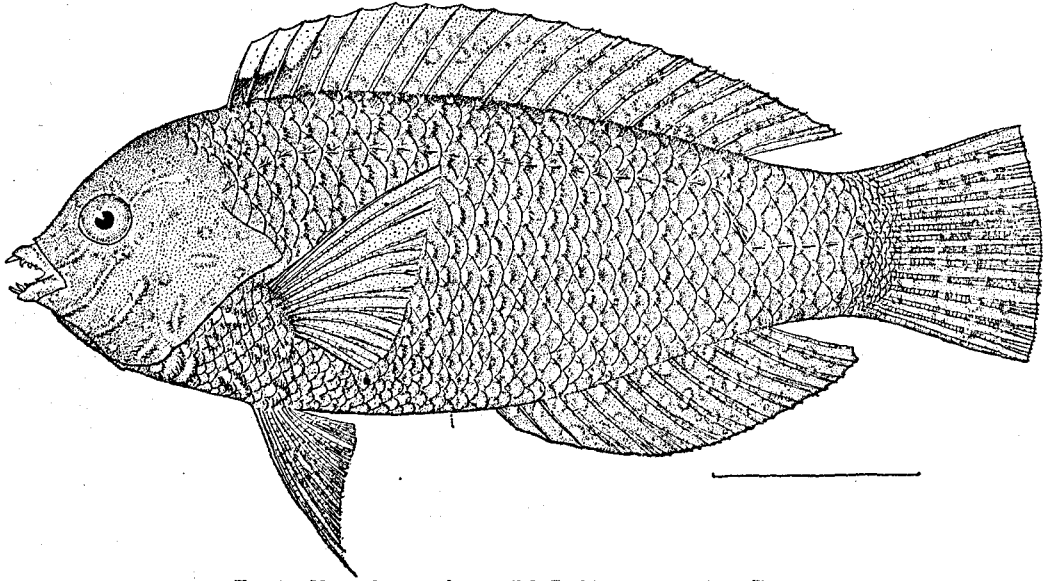


FIG. 1.—*Macropharyngodon aquilolo* Jenkins, new species. Type.

Allied to *M. geoffroyi* Bleeker, Proc. Zool. Soc. 1861, and Atl. Ichth., p. 129, tab. 37, fig. 5, from which it differs in form of body and pectoral and ventral fins, and in coloration of body, head, and fins. The peculiar form of the pharyngeal teeth seems to be a sufficient character upon which to found Bleeker's genus *Macropharyngodon*, which is here retained. Type No. 6130, L. S. Jr. University Museum.

This very beautiful fish is not common at Honolulu; some fishermen had never seen specimens before. The five obtained by me were taken with the hook. Their measurements were as follows:

| <i>Macropharyngodon aquilolo</i> . | No. 1. No. 2. No. 3. No. 4. No. 5. | | | | | <i>Macropharyngodon aquilolo</i> . | No. 1. No. 2. No. 3. No. 4. No. 5. | | | | |
|------------------------------------|------------------------------------|-----|-----|-----|-----|------------------------------------|------------------------------------|-----|-----|-----|-----|
| | mm. | mm. | mm. | mm. | mm. | | mm. | mm. | mm. | mm. | mm. |
| Length to base of caudal. | 99 | 103 | 112 | 90 | 105 | Height of first dorsal spine | 10 | 8 | 10 | 9 | 10 |
| Caudal | 17 | 23 | 23 | 22 | 25 | Height of soft dorsal | 15 | 19 | 18 | 15 | 16 |
| Total length | 116 | 126 | 135 | 112 | 130 | Soft anal | 15 | 19 | 18 | 15 | 16 |
| Head | 30 | 34 | 34 | 30 | 34 | Ventral | 25 | 27 | 29 | 24 | 26 |
| Depth | 49 | 44 | 46 | 40 | 41 | Pectoral | 25 | 27 | 29 | 24 | 26 |
| Eye | 7 | 7 | 7 | 6 | 7 | Width of body | 11 | 11 | 15 | 11 | 11 |
| Snout | 9 | 11 | 11 | 10 | 11 | | | | | | |

Halicheres iridescens Jenkins, new species. Native name, *Ohua paawela*. Fig. 2.

Head with flap in length of body to base of caudal 3.5, in total length 4; depth 3.16, 3.66. D. IX, 12. A. III, 12 (in one specimen III, 11). Scales 3-27-8. Outline elliptical, body compressed, somewhat elevated; teeth 2-2, posterior canine in each jaw. Type No. 6131, L. S. Jr. University Museum.

Coloration in life: Each scale with a dark-red crescent spot, convex anteriorly, this spot bordered posteriorly with blue; head bright-red, with bright-green stripe on median line from snout to base of caudal, a bright-green stripe along upper margin of eye on to body, where it continues more or less distinctly just above lateral line about half the length of body; a narrow green line from snout to middle of anterior margin of eye, a bright-green stripe from near angle of mouth along lower margin of eye to opercular flap, where it is confluent with a wide bright-green band from the chin backward over lower limb of preopercle and the subopercle and opercle; this green gradually shading into blue on throat and belly; a black spot behind eye surrounded by bright-green, with red spots in some specimens; dorsal fin dark-red, with a row of dark-green oblong spots on proximal border, one spot on each interspinous membrane, a green longitudinal band on outer portion, with a very narrow outer margin of light-blue; a black spot in membrane between first and second spines; in one specimen a double blotch between first and third soft rays, a median row of green spots. The detail of markings in this fin varies in the three specimens. Anal dark-red with a green band along central portion, outer margin with narrow blue line; caudal dark-red with a crossband of bluish-green at the base, with two or three other crossbands often broken up into spots of green with orange centers; ventrals blue, with dark line on anterior portion; pectorals pale-red, with base and axils bright-green.

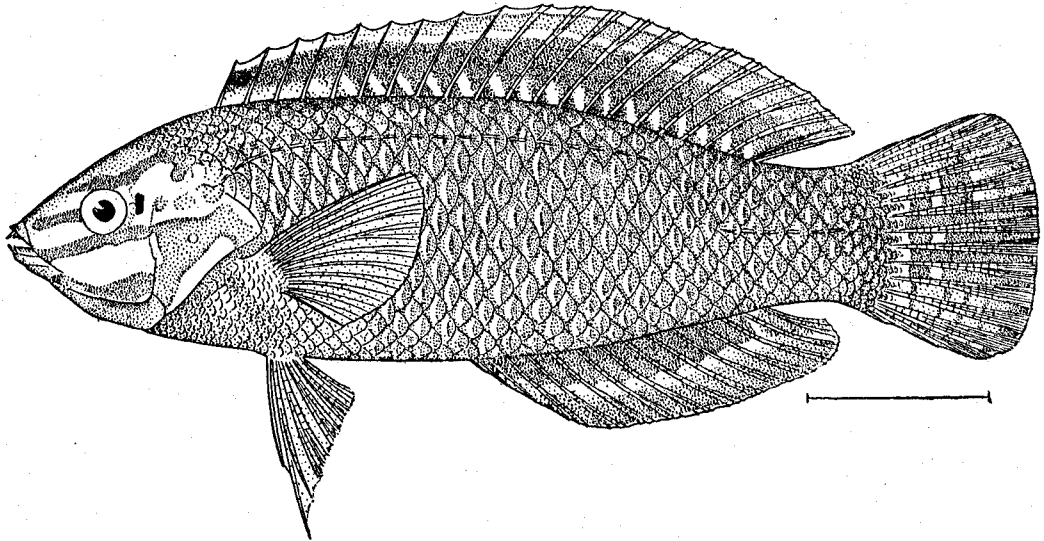


FIG. 2.—*Halicheres iridescens* Jenkins, new species. Type.

Coloration similar to that of *Julis ornatissimus* Garrett. Garrett's description is incomplete, but shows that this fish differs in marked points of coloration, notably in conspicuous black spot behind eye, spot on anterior portion of dorsal, form of markings on the scales, and in number of anal rays.

A very brilliant fish, taken from the coral reefs, apparently not very common. Three specimens were taken by me, measuring 140 mm., 130 mm., and 120 mm. Detailed measurements of the last are given below:

| <i>Halicheres iridescens</i> . | Milli- meters. | <i>Halicheres iridescens</i> . | Milli- meters. |
|--------------------------------|-------------------|----------------------------------|-------------------|
| Body to base of caudal | 120 | Longest soft ray of dorsal | 18 |
| Caudal | 20 | Longest soft ray of anal | 17 |
| Total length | 140 | Pectoral | 22 |
| Head with flap | 34 | Ventral | 30 |
| Head without flap | 30 | Eye | 6 |
| Depth of body | 38 | Snout | 12 |

Halichares lao Jenkins, new species. Native name, *Lao*. Fig. 3.

Head with flap 3.4 in body to base of caudal; in total 4. Depth 3.4. D. IX, 12. A. III, 12 (the first anal spine showing only on dissection). Scales 2-29-9. Lateral line continuous, tubes branched. Posterior canines present, two prominent canines in front portion of each jaw. Body compressed, not elevated; fins moderate; caudal rounded; anal reaching vent; soft dorsal and soft anal equal in height and are one-half length of head with flap.

Coloration, body pink, lower parts blue; dark-brown spot on each scale; a green line on middle line of head from snout to origin of dorsal; a bright-green line from snout backward just above eye to body, where it is continued as a row of indistinct spots just above lateral line nearly to caudal; another green line from mouth just under eye to opercular flap; another broad green band covering lower limb of preopercle and subopercle, and lower portion of opercle joining the last on posterior portion of opercle; space between last two green bands a bright pink; coloration of head similar to that of *H. iridescens*; a black spot behind eye; dorsal fin with three black ocellated spots; the first, small and least distinct, is between first and second dorsal spines; the second, larger than eye, from first to third soft rays; the third, smaller, from tenth to eleventh soft rays; base of pectoral green; base of caudal orange and green.

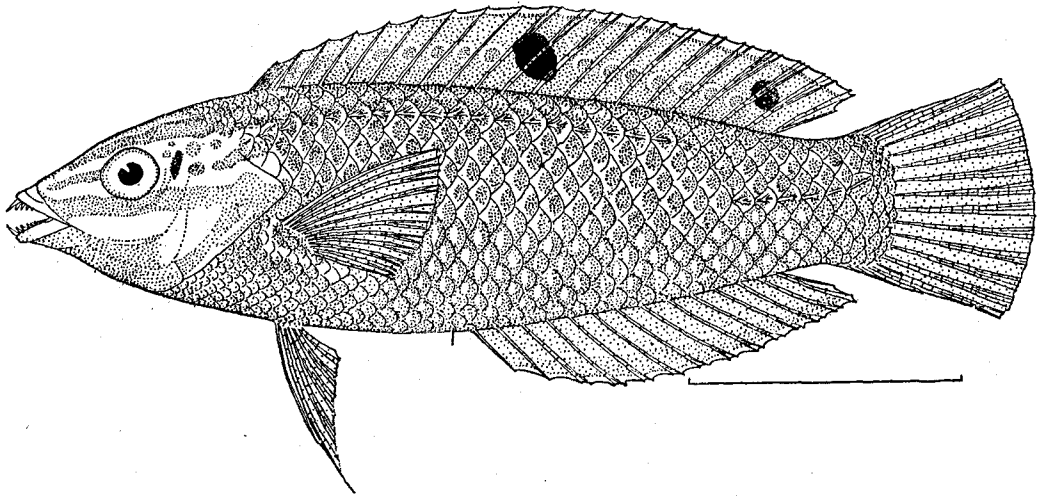


FIG. 3.—*Halichares lao* Jenkins, new species. Type.

Allied to *H. iridescens*, from which it differs in the more slender and less elevated body, somewhat longer head, and in coloration. The most conspicuous point of difference is the presence of black ocellated spots on dorsal.

Type No. 6132, L. S. Jr. University Museum.

One specimen was taken by me, the measurements of which were as follows:

| <i>Halichares lao</i> . | Milli- meters. | <i>Halichares lao</i> . | Milli- meters. |
|------------------------------|-------------------|----------------------------------|-------------------|
| Body to base of caudal | 82 | Longest soft ray of dorsal | 12 |
| Caudal | 13 | Longest soft ray of anal | 12 |
| Total length | 95 | Pectoral | 16 |
| Head with flap | 24 | Ventral | 18 |
| Head without flap | 22 | Eye | 6 |
| Depth of body | 24 | Snout | 8 |

Coris lepomis Jenkins, new species. Native name, *Hilu lauli*. Fig. 4.

Head, with flap, in length to base of caudal 3.16; in total 3.66; depth 3.66. D. IX, 12. A. III, 12. Scales 7-85-33. Lateral line continuous. Teeth, two strong canines in front of each jaw, followed by smaller teeth in single series; a posterior canine. Head naked; body elliptical, scales on breast and before dorsal smaller; two anterior dorsal spines slightly produced and flexible, remaining spines pungent; caudal fin slightly rounded; ventrals not produced, not reaching vent.

Coloration in life: General color bright-blue, sides rosy, a series of about five or six short (about one-fourth depth) oblique indistinct dusky bars on sides of body just behind pectoral fin, behind this an indistinct rosy patch; head, throat, breast, and belly covered with bright-golden spots and short irregular bars of same color. All the fins bright-blue with golden reticulations, which are especially bright on vertical fins; opercular flap large, terminating with a black spot as large as eye, posterior border of this spot with a narrow yellow border, anterior golden border. This spot is very similar to that seen on a sunfish (*Lepomis*).

One fine specimen of this beautiful fish was obtained by me. Type No. 12141, L. S. Jr. University Museum. It gave the following measurements:

| <i>Coris leptomis</i> . | Milli- meters. | <i>Coris leptomis</i> . | Milli- meters. |
|-------------------------------|-------------------|--------------------------|-------------------|
| Head with flap..... | 123 | Height of soft anal..... | 45 |
| Flap..... | 23 | Ventral..... | 65 |
| Length to base of caudal..... | 388 | Pectoral..... | 72 |
| Total length..... | 450 | Eye..... | 15 |
| Depth..... | 127 | Snout..... | 40 |
| Height of soft dorsal..... | 45 | | |

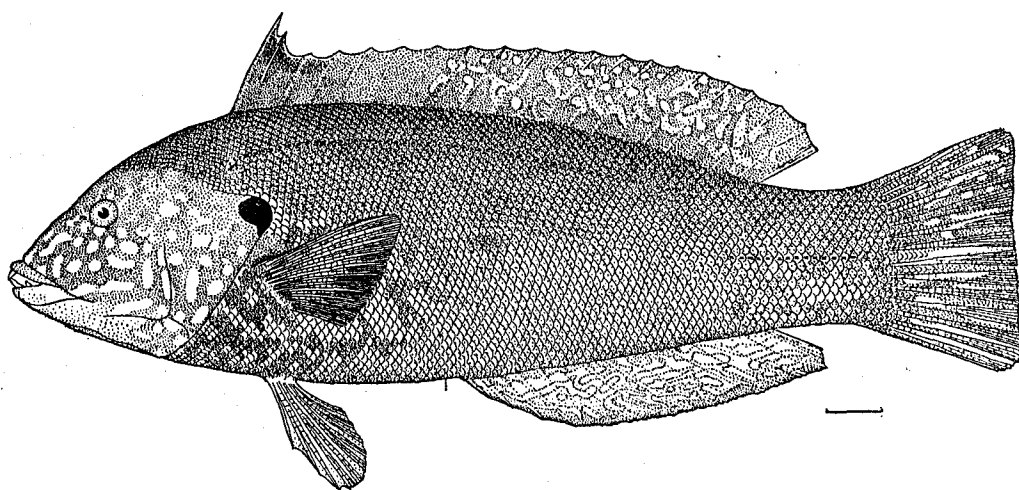


FIG. 4.—*Coris leptomis* Jenkins, new species. Type. Figure not quite accurate in proportional measurements.

***Hemicoris remedius* Jenkins, new species. Fig. 5.**

Head with flap 3.66 in body to base of caudal; in total length 4.33; head without flap 4.40 and 5.25. Depth 2.66 and 4.5. D. IX, 12. A. III, 12. Caudal rounded; first rays of ventral produced, reaching second anal spine. Scales 3-54-17; tubes simple; scales with tubes 50; scales on throat small, those on belly not much smaller than on body; head naked; rows of small scales extending on membranes between the caudal rays. Teeth, four prominent canines in upper jaw, two in lower, the second pair not much larger than those of series following; posterior canine tooth present.

Coloration in life: Body brown, dark above, light below; a bright-red band from eye along lateral line to its downward bend; a bright-red band from opercular flap extending backward to tip of pectoral, from which it is broken up into a series of short oblique crossbars on every alternate row of scales, becoming less distinct toward caudal peduncle; a bright-red band curving downward just below anterior portion of middle line of body, becoming indistinct about below a vertical from twelfth dorsal spine; another bright-red band from axil curving downward and extending backward to about second soft ray of anal; a bright-red band from angle of mouth curving upward to lower margin of eye, and down to edge of opercle just below flap; a bright-red band from a short distance behind symphysis curving upward over cheek and downward across middle of posterior margin of opercle on to breast to a point just behind base of ventrals; a bright-red band on each side of middle

line of throat; a short red bar at symphysis; a red spot just above and back of eye; anterior portion of opercular flap scarlet, bordered posteriorly first with black, then with bright yellow; spinous dorsal with a longitudinal band of red on middle portion, which on soft portion is broken up into small wavy lines and reticulations. In one young individual there is a black spot at root of sixth dorsal ray, one at root of the third from last, and one at roots of last two. These spots do not appear in the four large specimens. Caudal with crossbars of red alternating with yellow, somewhat wavy; pectorals plain yellow, base red; ventrals golden-yellow. A very bright fish.

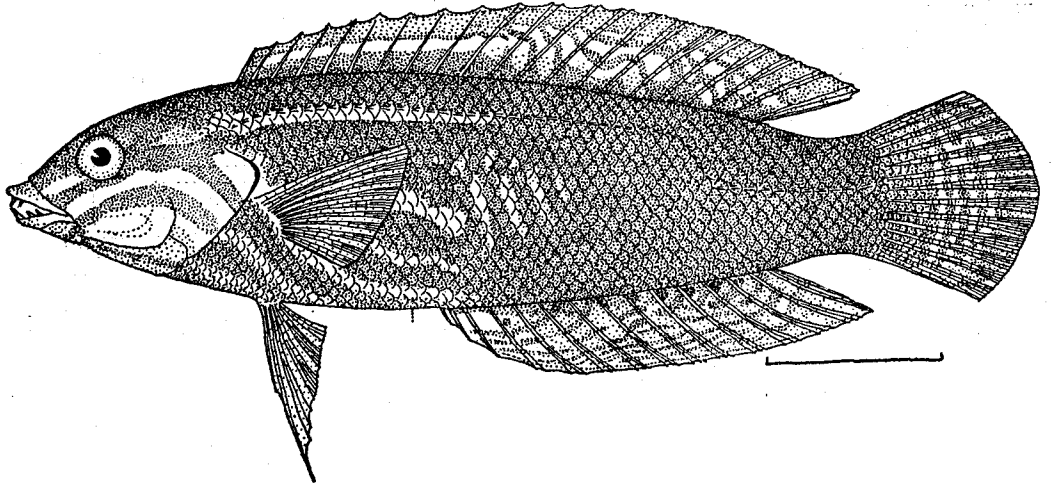


FIG. 5.—*Hemicoris remedius* Jenkins, new species. Type.

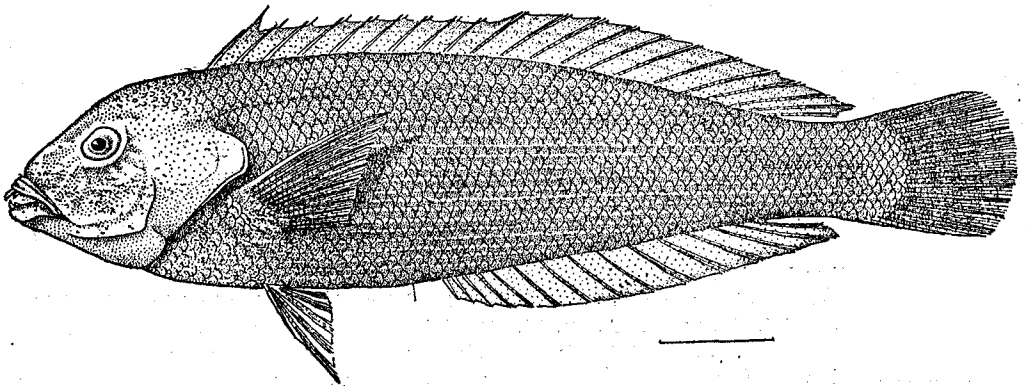


FIG. 6.—*Hemicoris keleipionis* Jenkins, new species. Type. Figure not quite accurate in proportional measurements.

Formerly valued by the natives as a medicine, the purpose not clearly stated. This species seems to be well known by the natives.

Type No. 6133, L. S. Jr. Univ. Mus. Five specimens, taken by me, had total length, including caudal fin, 15. cm., 15.5 cm., 14.3 cm., 15 cm., 12 cm., respectively. Measurements of one are given below.

| Hemicoris remedius. | Milli- meters. | Hemicoris remedius. | Milli- meters. |
|------------------------------|-------------------|---------------------------------|-------------------|
| Body to base of caudal | 133 | Longest soft ray of dorsal..... | 19 |
| Caudal fin | 24 | Longest soft ray of anal..... | 19 |
| Total length..... | 157 | Pectoral fin | 25 |
| Head with flap..... | 36 | Ventral fin | 32 |
| Head without flap..... | 30 | Eye..... | 7 |
| Depth of body..... | 37 | Snout..... | 9 |

Hemicoris keleipionis Jenkins, new species. Fig. 6.

Head 3.2 in body to base of caudal, 3.8 in total length; depth 3.6 to base of caudal, 4.5 in total length. D. IX, 12. A. III, 12. Scales 56, with tubes 50. Head entirely naked, bases of vertical fins not sheathed. Teeth pointed, two rows in each side of upper jaw, a single series in lower; no posterior canine, the two anterior canines strong and curved outward. First dorsal spine somewhat extended, spinous portion lower than soft rays; the caudal rounded; anal less high than dorsal; ventral not quite reaching vent.

Coloration in alcohol (not seen fresh): General color of body pale with tinge of pink, with about 21 distinct narrow longitudinal stripes, these running through upper border of each row of scales and lower border of the adjacent row; head pale without markings; ventral fins white; dorsal showing trace of a longitudinal line about one-third its height from outer margin; anal with no markings except faint trace on portions of outer margin; caudal showing remains of about five irregular cross-bands; pectoral and ventrals colorless and without markings.

This species is dedicated to Mr. Keleipio, of Honolulu, who rendered very valuable aid in securing the fishes of Dr. Wood's collection.

One specimen was obtained by Dr. Wood at Honolulu. Type No. 6049, L. S. Jr. University Museum. The following are its measurements:

| Hemicoris keleipionis. | Milli-meters. | Hemicoris keleipionis. | Milli-meters |
|-------------------------------|---------------|------------------------|--------------|
| Total length..... | 224 | Soft dorsal..... | 25 |
| Length to base of caudal..... | 190 | Soft anal..... | 20 |
| Caudal..... | 34 | Pectoral..... | 38 |
| Head..... | 59 | Ventral..... | 30 |
| Depth..... | 50 | Snout..... | 22 |
| First dorsal spine..... | 22 | | |

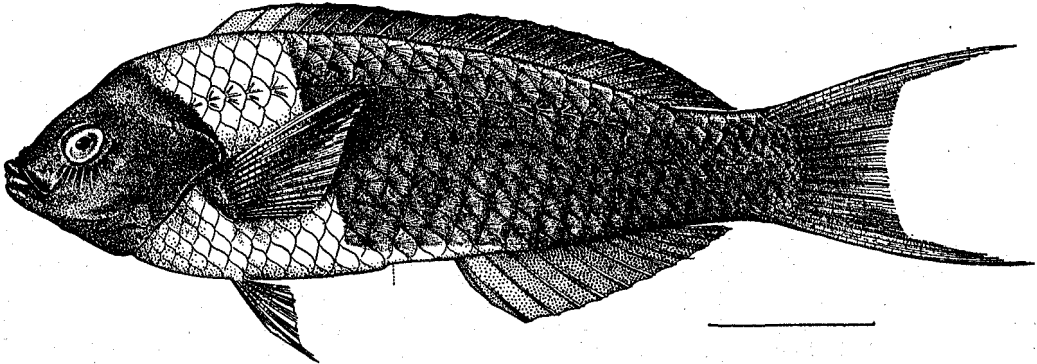


FIG. 7.—*Thalassoma pyrrhovinctum* Jenkins, new species. Type.

Thalassoma pyrrhovinctum Jenkins, new species. Native name, *Hinalea lauli*. Fig. 7.

Head with flap in body to base of caudal 3.4, in total, 4; depth in body to base of caudal 3.25, 3.6. D. VIII, 13. A. II, 11. Scales 2-28-9. Lateral line continuous, tubes three-branched. Teeth, two prominent canines from which the remaining ones of the series are graduated in size, no posterior canine. Caudal lobes produced, ventrals somewhat prolonged.

Coloration in life: Colors very bright; the whole head dark purple without markings, this color extending a very short distance on body; behind this coloration, a broad orange area extending around body from head as far back as third dorsal spine; remainder of body, with dorsal, anal, and caudal fins dark purple, with (in some specimens) reddish coloration; upper lobes of caudal sometimes distinctly reddish-brown; upper lobes of caudal much produced, amount varying, in some equaling three-fourths length of head; pectoral with a broad dusky bar extending from middle of fin to tip; axil and base of fin a dark purple; ventrals produced. Mrs. Whitney, of Honolulu, has shown me a series of colored drawings of Hawaiian fishes made by her, in which the colors represented are as contained in my notes with the exception of representing color of body behind the orange bar as dark green, each scale with a vertical brown line; dorsal and anal fins very dark purple.

This fish is similar to *T. melanopectera* (Günther), differing in conspicuous orange band from head to third dorsal spine extending around body, in dark-purple color of caudal, and in ventrals being pro-

duced. The fish identified by Streets, Bull. U. S. N. M., No. 7, 1877, as *Julis melanoptera*, is probably this species. In his specimen the colors were faded, which may account for absence of orange area.

This fish is common. Many specimens were obtained by me and three by Dr. Wood, the largest being 165 mm. in length. Type No. 6138, L. S. Jr. Univ. Museum. The measurements of one are given:

| Thalassoma pyrrhovinctum. | Milli- meters. | Thalassoma pyrrhovinctum. | Milli- meters. |
|------------------------------|-------------------|-------------------------------------|-------------------|
| Body to base of caudal | 137 | Height of longest soft dorsal | 15 |
| Caudal (middle) | 22 | Height of longest soft anal | 14 |
| Total length | 159 | Pectoral | 31 |
| Head with flap | 40 | Ventral | 23 |
| Head without flap | 35 | Snout | 8 |
| Depth of body | 44 | Eye | 7 |

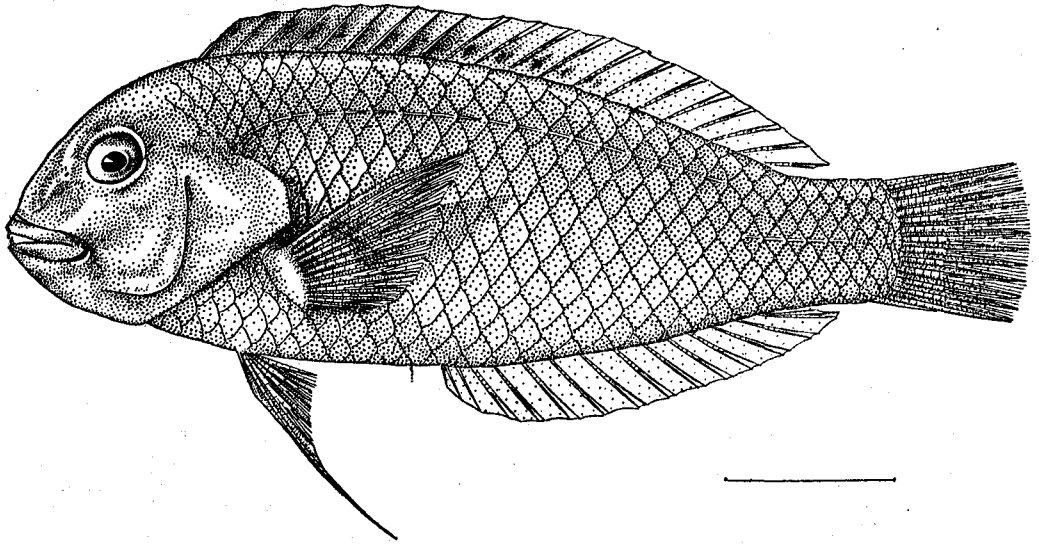


FIG. 8.—*Novaculichthys woodi* Jenkins, new species. Type.

***Novaculichthys woodi* Jenkins, new species. Fig. 8.**

Head 3 in body to base of caudal (3.5 in total); depth 2.6 in body to base of caudal (3.1 in total); D. ix, 12. A. iii, 12. Scales 27 (24 with tubes single). Body deep, compressed; profile of head obtuse, evenly curved; eye but small distance above axis of body; distance from margin of eye to angle at mouth $3\frac{1}{2}$ in head. Scales 2-27-9; head naked; the area in front of ventrals naked, or with few deeply imbedded scales; scales on sides of breast somewhat smaller than on sides of body. Teeth conical, in a single series, two anterior canines in each jaw, the lower two fitting in between upper two; no posterior canine. Anterior spine flexible, next less so, the remaining pungent; origin of dorsal in advance of base of pectoral; height of the soft dorsal nearly 3 in head; ventral spine short, strong, pungent; first soft ray filamentous, reaching somewhat beyond origin of anal; caudal rounded; pectoral $1\frac{1}{2}$ in head.

Coloration: In alcohol, general color body pale without markings; fins white, except membrane of spinous dorsal, which is black; black dots on membrane between first 3 or 4 soft rays.

Similar to *Novaculichthys entargyreus* Jenkins. This species is named for Dr. Thomas Denison Wood, professor of hygiene in Stanford University, who obtained two specimens at Honolulu.

Type No. 6029, L. S. Jr. Univ. Mus. The measurements of two specimens are given:

| <i>Novaculichthys woodi</i> . | No. 1. | | No. 2. | | <i>Novaculichthys woodi</i> . | No. 1. | | No. 2. | |
|-------------------------------|--------|-----|----------------------------------|-----|-------------------------------|--------|-----|--------|-----|
| | mm. | mm. | mm. | mm. | | mm. | mm. | mm. | mm. |
| Body to base of caudal | 130 | 131 | Longest soft ray of dorsal | 16 | 15 | | | | |
| Caudal | 25 | 27 | Pectoral | 29 | 30 | | | | |
| Total length | 155 | 168 | Ventral | 37 | 37 | | | | |
| Head with flap | 44 | 44 | Eye | 9 | 9 | | | | |
| Depth of body | 49 | 50 | Snout (from margin of eye) | 10 | 11 | | | | |
| Longest spine of dorsal | 12 | 13 | | | | | | | |

Novaculichthys entargyreus Jenkins, new species. Fig. 9.

Head 3.2 in body to base of caudal (4 in total); depth 2.7 to base of caudal (3.2 in total). D. IX, 12. A. III, 12. Scales 27 (24 with tubes, tubes single). Body deep, compressed; profile of head obtuse, evenly curved; eye only moderately high; distance from margin of eye to angle of mouth about 4 in head. Scales 2-27-9; head naked; area in front of ventrals naked or with few deeply imbedded scales; scales on sides of breast somewhat smaller than on sides of body. Teeth conical, in a single series, two anterior canines in each jaw, the lower two fitting in between upper two; no posterior canine. Dorsal fin continuous, the anterior spines not protruding, the spinous portion lower than soft portion; anterior spine flexible, the next less so, remaining ones pungent; origin of dorsal in advance of base of pectoral; soft dorsal 2.5 in head; ventral with a short, pungent spine; first soft ray filamentous, just reaching vent; caudal rounded; pectoral 1.5 in head.

Coloration (in alcohol): Body and fins pale, without distinct markings; two broad longitudinal silvery bands along sides of body, the pigment being in the skin below the scales but showing through; transverse narrow silvery markings on peritoneum show through between ventrals and vent.

One specimen of this fish, 140 mm. in length, is in the collection made by Dr. Wood, at Honolulu. Type No. 5984, Leland Stanford Jr. University Museum. Its measurements follow:

| Novaculichthys entargyreus. | Milli-meters. | Novaculichthys entargyreus. | Milli-meters. |
|-------------------------------|---------------|----------------------------------|---------------|
| Body to base of caudal | 117 | Longest soft ray of dorsal | 14 |
| Caudal | 23 | Longest soft ray of anal | 13 |
| Total length | 140 | Pectoral | 25 |
| Head (with flap) | 37 | Ventral | 28 |
| Depth of body | 44 | Eye | 8 |
| Longest spine of dorsal | 9 | Snout (from margin of eye) | 8 |

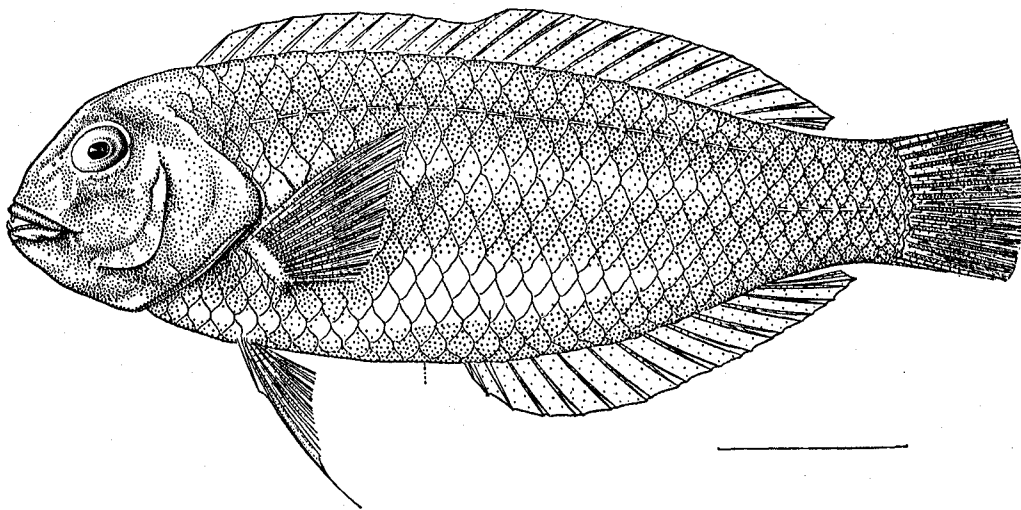


FIG. 9.—*Novaculichthys entargyreus* Jenkins, new species. Type.

Hemipteronotus umbrilatus Jenkins, new species. Native name, *Lae nihi*. Fig. 10.

Head, with flap, in length to base of caudal 3.5, in total 4; depth 2.8, 3.2. D. II-VII, 12. A. III, 12. Scales 2-25-9, tubes simple, lateral line interrupted; scales behind eye, cheeks covered with small scales, opercles and preopercles scaleless; the two anterior spines of the dorsal not produced, separated from remainder of dorsal by narrow space not quite twice eye. Teeth, two prominent canines in anterior part of each jaw, the lower fitting between the upper.

Coloration in life; general color a light-drab, with posterior portion of each scale white or whitish; a large dark-brown blotch, large as head, on middle portion of body, in which blotch the posterior half of each scale is white; the anterior separated portion of dorsal dusky; no distinct markings on the fins.

Type No. 6135, L. S. Jr. University Museum.

One specimen obtained by me, of which the following table of measurements was taken:

| Hemipteronotus umbrilatus. | Milli- meters. | Hemipteronotus umbrilatus. | Milli- meters. |
|---------------------------------|-------------------|---------------------------------|-------------------|
| Body to base of caudal..... | 107 | Longest soft ray of anal..... | 13 |
| Caudal..... | 16 | Pectoral..... | 22 |
| Total length..... | 123 | Ventral..... | 20 |
| Head with flap..... | 31 | Eye..... | 7 |
| Head without flap..... | 27 | Snout..... | 15 |
| Depth of body..... | 38 | Anterior portion of dorsal..... | 12 |
| Longest soft ray of dorsal..... | 13 | | |

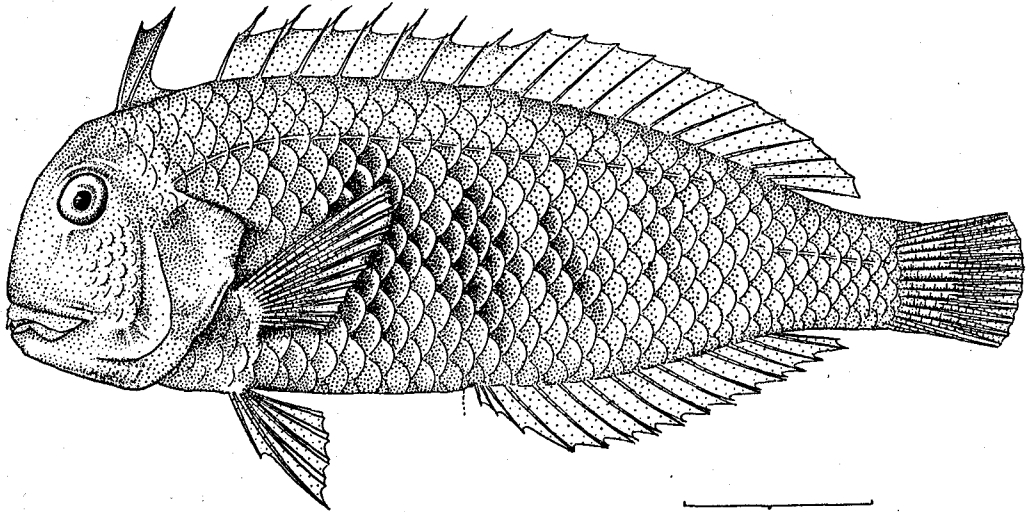


FIG. 10.—*Hemipteronotus umbrilatus* Jenkins, new species. Type.

Iniistius leucozonus Jenkins, n. sp. Native name, *Lae nihi*, applied to other fishes, also. Fig. 11.

Head in body to base of caudal 3.2, in total 3.7; depth 3.5. D. II-VII, 12. A. III, 12. Scales 2-26-9; lateral line interrupted, tubes simple. Two prominent canines in anterior part of each jaw, the pair in lower jaw fitting between those in upper and projecting above the jaw; no posterior canine; gill-rakers minute; upper edge of head sharp; the two anterior rays of dorsal produced, and separated from remainder of dorsal by a space equal to snout; a very few scales just behind eye; rest of head, cheeks, opercles, and preopercles scaleless.

One specimen was obtained by me, from which were taken the following measurements:

| <i>Iniistius leucozonus</i> . | Milli- meters. | <i>Iniistius leucozonus</i> . | Milli- meters. |
|-------------------------------|-------------------|--------------------------------|-------------------|
| Body to base of caudal..... | 112 | Height of soft anal..... | 18 |
| Caudal..... | 18 | Height of anterior dorsal..... | 36 |
| Total length..... | 130 | Pectoral..... | 22 |
| Head with flap..... | 35 | Ventral..... | 24 |
| Head without flap..... | 29 | Eye..... | 7 |
| Depth of body..... | 37 | Snout..... | 14 |
| Height of soft dorsal..... | 15 | Depth of head..... | 21 |

Coloration in life: Body with four white bands alternating with four bands of brown to olivaceous; first brown band covering posterior portion of opercle and body just posterior below, being in width from base of ventral nearly to anal; second brown band in width from seventh spine to fifth soft ray of dorsal, extending on anal; third, from ninth to last soft dorsal ray, extending on anal; fourth brown band on base of caudal; a brown dart from eye to angle of opercle; middle line of snout, chin, and throat yellow; two dark brown lines from eye to eye over head; small black spots above and behind eye; several scales in upper part of second brown band on body with distinct brown dots; a scale in second row just below fourth spine jet black; anterior dorsal with alternating dark and white spots; second portion of dorsal with three ocellated black spots; first between second and third spines, the longest as long as snout; second between first and fourth soft rays; third between eighth and tenth soft rays, lying on ninth; pectorals colorless; ventrals olivaceous.

Allied to *Iniistius tetrazonus* Bleeker, which it resembles, but from which it differs in having three ocelli on dorsal, and a distinct black spot on scale below third or fourth dorsal spine also. Type No. 6137, L. S. Jr. University Museum.

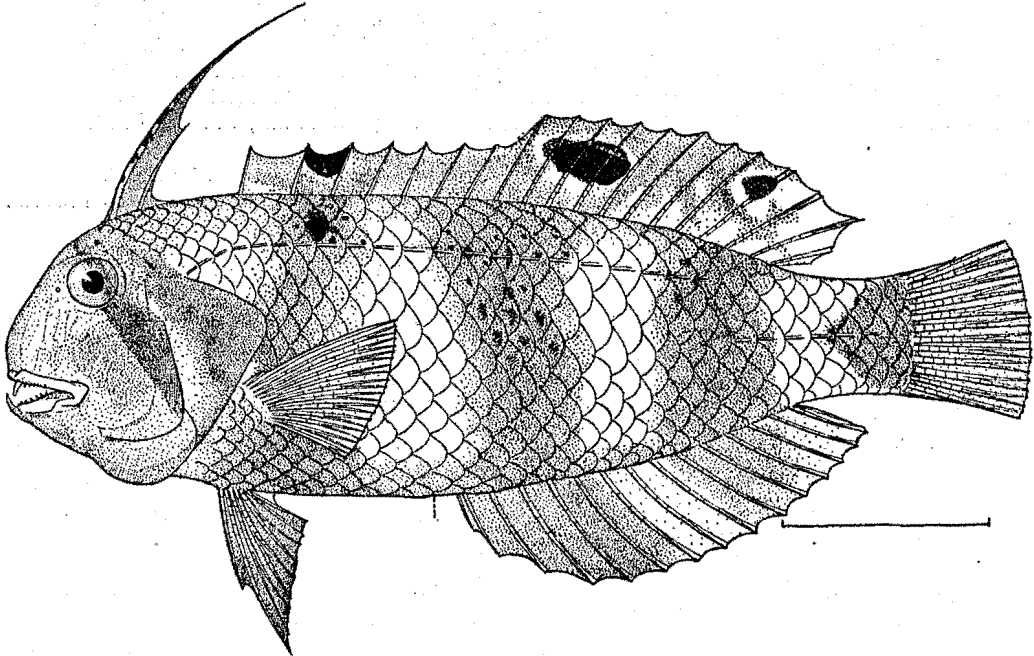


FIG. 11.—*Iniistius leucozonus* Jenkins, new species. Type. The first anal ray in figure should be a spine.

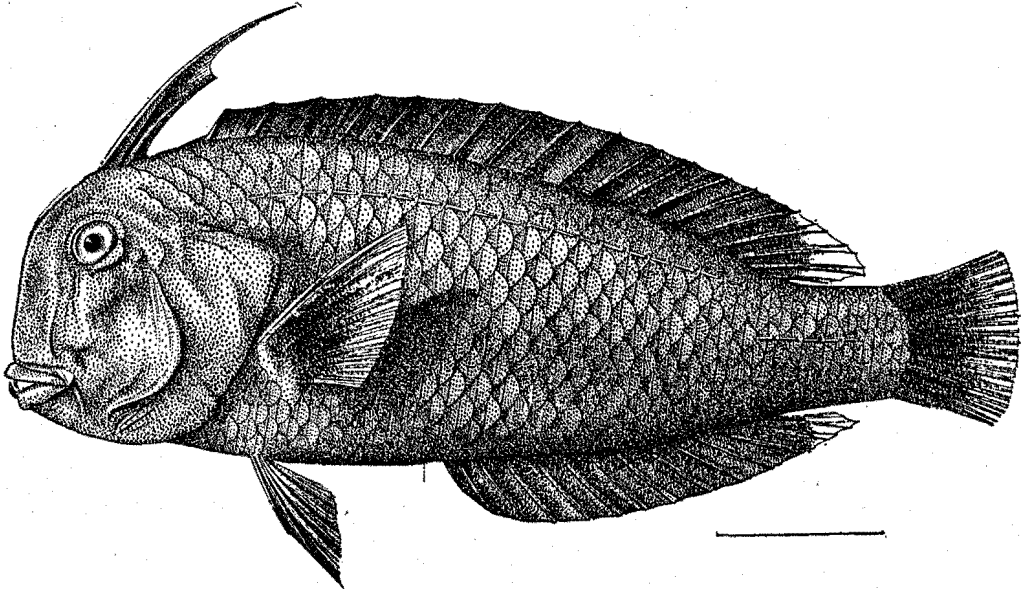


FIG. 12.—*Iniistius verater* Jenkins, new species. Type.

Iniistius verater Jenkins, new species. Fig. 12.

Head 3 to base of caudal, 3.5 in total; depth 2.75, 3.1 in total. D. II-VII, 12. A. III, 12. Eye 6 in head; snout 2.2 in head; body deep, compressed; profile of head vertical; eye high near upper margin of head; posterior angle of mouth in a vertical line below front margin of eye, distance of eye from this nearly half the length of head. Scales 2-28-11; head naked except deeply imbedded

scales on nape and faint trace of margins of two or three scales deeply imbedded just behind eye; scales on breast smaller than on sides of body; each scale with a delicate vertical ridge running across its center; tubes in lateral line single. Teeth conical, in a single series, the two anterior in each jaw enlarged canines, the two lower fitting between those of upper; the core of each tooth black, showing through. Two anterior dorsal spines stand over eye free from rest of dorsal, the space between them and remaining dorsal equaling half length of second spine, these two spines prolonged, the first filamentous, its height nearly equaling head; ventrals just reaching vent, caudal rounded.

Coloration in alcohol: The whole body and fins black except tips of posterior two or three rays of dorsal and anal fins, posterior half of caudal, and most of the pectoral fins, which are white, being black-blotched at the base.

This description is based on two specimens collected in the Honolulu market by Dr. T. D. Wood in 1898. Type No. 5990, L. S. Jr. University Museum. The measurements of the two are given below:

| <i>Iniistius verater.</i> | No. 1. | No. 2. | <i>Iniistius verater.</i> | No. 1. | No. 2. |
|-----------------------------------|-------------------|-------------------|----------------------------------|------------------|------------------|
| Body to base of the caudal | <i>mm.</i> 135 | <i>mm.</i> 120 | Longest soft ray of dorsal | <i>mm.</i> 17 | <i>mm.</i> 17 |
| Caudal | 27 | 24 | Longest soft ray of anal | 19 | 19 |
| Total length | 162 | 144 | Pectoral | 28 | 25 |
| Head with flap | 46 | 42 | Ventral | 26 | 23 |
| Head without flap | 39 | 31 | Eye | 8 | 7 |
| Depth of body | 52 | 44 | Snout (from margin of eye) | 22 | 19 |
| Longest ray of anterior dorsal .. | 41 | 39 | | | |

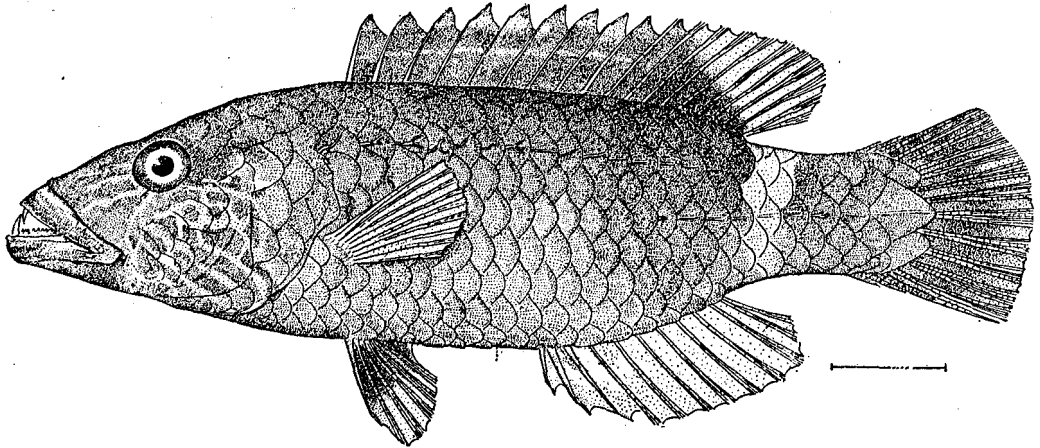


FIG. 13.—*Cheilinus zonurus* Jenkins, new species. Type.

Cheilinus zonurus Jenkins, new species. Native name *Poou*. Fig. 13.

Head, with flap, to base of caudal 2.9, in total 3.4; depth 3 (3.8 in total length). D. ix, 10. A. iii, 8. Scales 2-21-6; lateral line interrupted, 23 or 24 in upper portion; 14 or 15 scales with tubes, some simple, some branched. Two strong canines in anterior portion of each jaw, no posterior canines; lower jaw produced, its canines fitting in between those of the upper; gillrakers, on lower limb 10, short, conical; on upper about 6, mostly rudimentary. Body somewhat compressed, elliptical, contracted suddenly at caudal peduncle; lower jaw produced; head concave above eye; caudal rounded; soft dorsal like soft anal, posterior portion of each the higher; two rows of scales on cheek, preopercle naked, opercle with two, subopercle one row of scales.

General color a dull red to drab, each scale with a vertical line of brighter red; a series of orange lines running obliquely downward and backward on each side of face to edge of opercle, and from eye forward to mouth; a light-red band around caudal peduncle just behind dorsal and anal fins; spinous dorsal mottled with dark, with two longitudinal orange stripes more distinct anteriorly; posterior portion of soft dorsal light pink; anal fin rosy, brighter anteriorly; caudal with many dull shadings, with olive prevailing toward outward margin; pectoral pale-red, with yellow base; ventral rays rosy, membranes white, a large dusky-red spot on anterior portion, showing only on upper surface.

This fish appears to be the same as that identified by Smith & Swain as *Cheilinus diagramma* Lacépède, Proc. U. S. Nat. Museum 1882, 133, in a collection of fishes from Johnson Island, Pacific Ocean. Type No. 6134, L. S. Jr. University Museum. The measurements follow:

| <i>Cheilinus zonurus.</i> | Milli- meters. | <i>Cheilinus zonurus.</i> | Milli- meters. |
|---------------------------------|-------------------|-------------------------------|-------------------|
| Body to base of caudal..... | 188 | Longest soft ray of anal..... | 26 |
| Caudal..... | 38 | Pectoral..... | 33 |
| Total length..... | 226 | Ventral..... | 29 |
| Head with flap..... | 66 | Eye..... | 19 |
| Depth of body..... | 60 | Snout..... | 27 |
| Longest soft ray of dorsal..... | 26 | | |

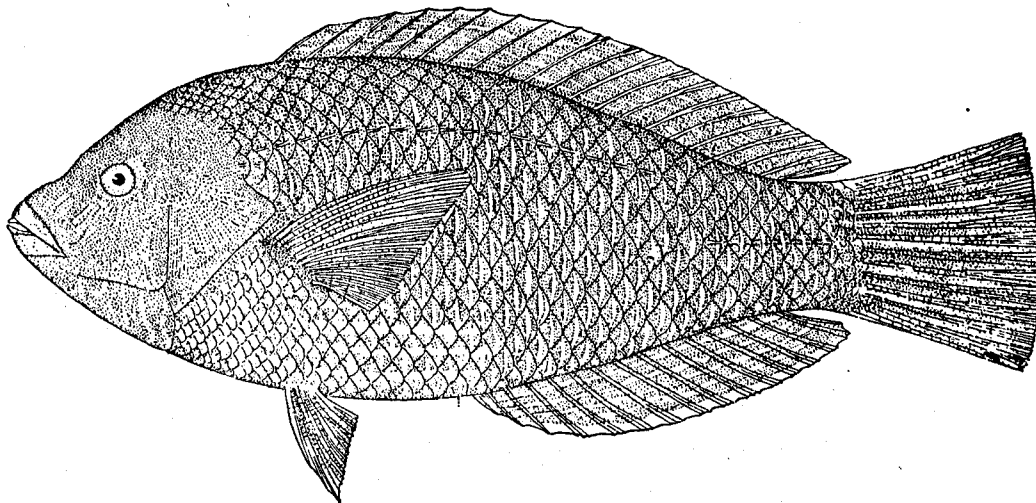


FIG. 14.—*Anampses evermanni* Jenkins, new species. Type.

***Anampses evermanni* Jenkins, new species. Fig. 14.**

Head, with flap, in body to base of caudal 3 (in total 3.6); depth 2.2 (2.5). D. ix, 12. A. iii, 12. Scales 4-26-11; scales with tubes 28, tubes mainly simple. Lateral line continuous. Two prominent canine teeth in each jaw, flattened with cutting edge. Body oval, deeper in front; scales large, those in front of dorsal and on breast small; a row of small scales at base of anal and at base of anterior part of dorsal; caudal truncate; ventrals not much produced, reaching origin of anal. Opercles with prominent striations radiating from upper anterior angle; striations also on subopercle, preopercle, and interopercle; dorsal spines flexible at tips. Coloration, brownish-red, with a vertical blue line on each scale; snout blue; chin, throat, and sides of face with blue reticulations; dorsal fin color of body, outer margin blue, fin covered with 7 or 8 longitudinal wavy blue lines and rows of dots, some running into each other and making reticulations; anal, ground color red, outer margin blue, fin with 4 or 5 distinct blue longitudinal lines; ventral, anterior margin blue, fin red with blue lines and dots; pectoral olive, anterior margin blue; caudal red, with longitudinal blue line. The coloration of the first is almost exactly the same as in *Anampses curvieri*.

Allied to *Anampses godeffroyi* Günther, differing in coloration and number of scales. Four specimens taken by me; total length of each, respectively, 297, 260, 295, 295 mm. Type No. 6136, L. S. Jr. University Museum. The measurements are given below:

| <i>Anampses evermanni.</i> | Milli- meters. | <i>Anampses evermanni.</i> | Milli- meters. |
|---------------------------------------|-------------------|----------------------------|-------------------|
| Length of body to base of caudal..... | 250 | Soft dorsal..... | 35 |
| Caudal..... | 47 | Soft anal..... | 32 |
| Total..... | 297 | Eye..... | 11 |
| Head with flap..... | 82 | Snout..... | 30 |
| Head without flap..... | 74 | Ventral..... | 42 |
| Depth..... | 112 | Pectoral..... | 62 |

Calotomus irradians Jenkins, new species. Fig. 15.

Head 3.33 (in total 3.9); depth 2.33 (2.9). D. ix, 10. A. iii, 9. Scales 25. Teeth pointed, both tips and margins free, posterior surface adnate to dental plate, of about equal size in both jaws; at least one strong tooth at posterior angle of each upper jaw, curved backward and downward; teeth in oblique series of about 5 series in each half of upper, and of about 8 series in each half of lower jaw; 3 to 4 teeth in each series. Scales on cheek in a single series, 6 in number, 4 scales in median line before dorsal, 3 scales before ventral, this line continued by 2 scales between bases of ventrals, forming a sort of appendage in this position; scales not reduced on breast; one and one-half series of scales between lateral line and base of dorsal, the half series only slightly sheathing base of dorsal fin. Dorsal spines flexible; origin of dorsal, base of pectoral, and base of ventral fins in a vertical line; posterior margin of caudal a straight line, except moderate prolongation of upper rays, longest ray 2.4 in head; ventrals reaching halfway to vent; pectoral fin broad as long, longest rays (second and third) 1.5 in head. Posterior margin of fin slightly convex.

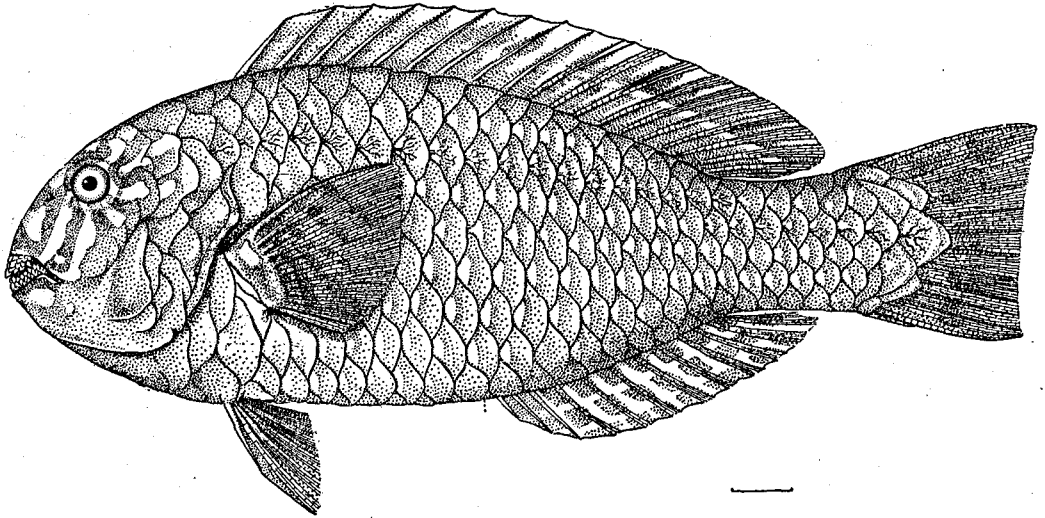


FIG. 15.—*Calotomus irradians* Jenkins, new species. Type.

Color in life: General color of body and fins blue; head, chin, and throat bright-blue, marked with pink, arranged as follows: About 8 bands radiating from eye and a number of bands and irregular figures on snout, face, and occiput, and a few small spots on chin; of the pink bands radiating from eye 2 reach region of angle of mouth, 2 join the irregular markings on face and occiput, and 4 radiate over the region of cheek and behind eye; a vertical bar of pink on each scale; in some regions this bar is partly concealed by overlapping scale; vertical fins bright-blue, with reticulations and spots of pink; ventrals blue; pectorals blue, olive, and pink.

This very beautiful fish is somewhat rare and is very highly prized by native fishermen for virtues they suppose it to possess. They usually ask an exorbitant price for it. The description is based on two specimens, one obtained by me in 1889 and one by the *Albatross* in 1896. Type No. 12142, L. S. Jr. University Museum. The measurements of the two are given below:

| <i>Calotomus irradians</i> . | No. 306. | No. 1298. | <i>Calotomus irradians</i> . | No. 306. | No. 1298. |
|---|------------|------------|-----------------------------------|------------|------------|
| | <i>mm.</i> | <i>mm.</i> | | <i>mm.</i> | <i>mm.</i> |
| Length total (to end of middle of caudal) | 415 | 410 | Depth | 150 | 150 |
| Length to base of caudal | 350 | 345 | Height of longest soft dorsal ... | 45 | 45 |
| Caudal (middle) | 65 | 55 | Height of longest soft anal | 47 | 45 |
| Caudal, longest upper limb | 79 | 75 | Pectoral | 73 | 73 |
| Head with flap | 108 | 106 | Ventral | 60 | 60 |
| Head without flap | 96 | 94 | Snout | 47 | 46 |
| | | | Eye | 16 | 16 |

Scarus brunneus Jenkins, new species. Fig. 16.

D. IX, 10. A. II, 9. P. 13. V. 6. Head 3 in length to base of caudal; in total (to middle of caudal) 3.5. Depth 2.6 in length to base of caudal; in total (to middle of caudal) 3.1. Scales 24; lateral line interrupted, scales slightly roughened by striations of minute tubercles; tubes, some single, some once or twice branched. Body deep, compressed. Teeth whitish, a tooth at posterior angle of upper jaw on one side in one specimen, the largest, none in 7 others. Upper lip double the whole length, broad, nearly covering dental plate; lower lip covering more than half of lower dental plate. Cheek with two rows of scales, 6 in upper and 5 in lower row; no scales on anterior limb of preopercle; a row of scales along margin of opercle; a series of 4 scales on median line before first dorsal spine. Dorsal spines flexible, spinous portion nearly equaling the soft portion in height; margin of caudal fin convex in the smaller specimens, with lobes not produced; lobes produced in larger ones; height of caudal peduncle 2 in head; pectoral 1.2 in head, its breadth about $1\frac{1}{2}$ its own length; ventral 1.9 in head, not reaching the vent by a distance equal to half the whole length of the fin, inserted on a vertical through the anterior point of insertion of base of pectoral.

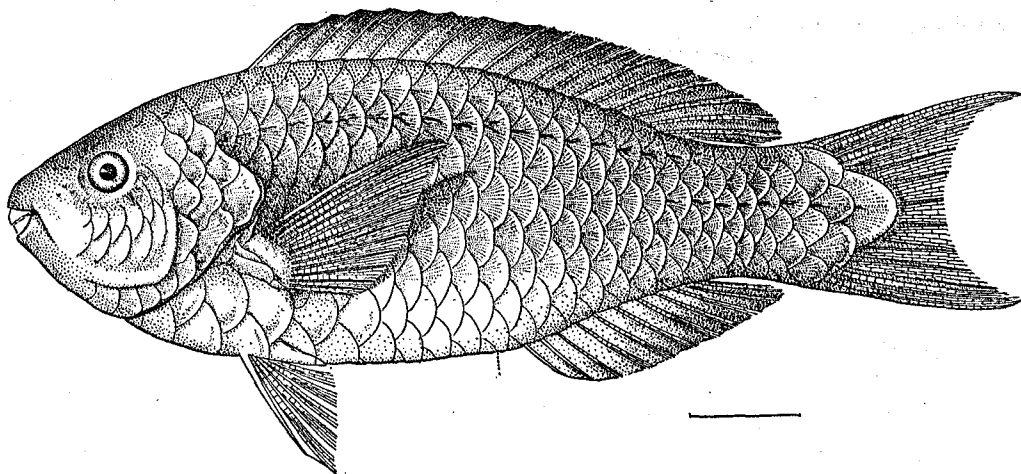


FIG. 16.—*Scarus brunneus* Jenkins, new species. Type.

Coloration in life: Body, head, and vertical fins dusky-brown; pectorals and ventrals lighter; no distinct markings anywhere. This fish appears to be similar to *Scarus dubius* Bennett, whose description is very meager. In that given, it differs in not having scales on anterior limb of the preopercle, in having a pointed tooth at angle of jaw, in having 13 rays in pectoral, and in the caudal not being white on posterior edge.

Type 6139, L. S. Jr. University Museum. Seven specimens were obtained by me. Measurements of three of these are given below:

| <i>Scarus brunneus</i> . | No. 1. No. 2. No. 3. | | | <i>Scarus brunneus</i> . | No. 1. No. 2. No. 3. | | |
|---------------------------------------|----------------------|-----|-----|-----------------------------------|----------------------|-----|-----|
| | mm. | mm. | mm. | | mm. | mm. | mm. |
| Total length to middle of caudal..... | 220 | 185 | 143 | Height of first dorsal spine..... | 18 | 16 | 13 |
| Length to base of caudal..... | 182 | 152 | 116 | Height of soft dorsal rays..... | 22 | 19 | 15 |
| Head..... | 62 | 53 | 39 | Height of soft anal rays..... | 18 | 17 | 14 |
| Depth..... | 70 | 60 | 43 | Ventral..... | 33 | 29 | 24 |
| Eye..... | 11 | 10 | 8 | Pectoral..... | 50 | 39 | 30 |
| Snout..... | 24 | 20 | 15 | Depth of caudal peduncle..... | 30 | 27 | 19 |

Scarus gilberti Jenkins, new species. Fig. 17.

D. IX, 10. A. II, 9 (3 anal spines show on dissection). P. I, 12. Head 2.75 in length to base of caudal, 3.47 in total. Depth 2.44 in length to base of caudal, 3.1 in total. Scales 24; lateral line interrupted; scales slightly roughened by very fine striations of minute tubercles; tubes but little branched. Body deep, compressed. Teeth whitish, lower jaw included. Upper lip double the whole length, covering whole of dental plate; lower lip covering about half of lower dental plate. Two

teeth at posterior angle of upper jaw, one at angle of lower jaw. Cheek with two rows of scales, seven in upper row and 4 to 5 in lower, the margin of one or two scales of lower projecting over anterior limb of preopercle; a series of scales along margin of opercle; a series of 4 scales along median line before first dorsal spine. Dorsal spines flexible; caudal fin middle margin straight, the lobes produced nearly the length of middle portion of fin in longest specimen, less so in smaller ones. Caudal peduncle 2 in head. Pectoral 1.3 in head, its breadth about two-thirds its own length; ventral 1.6 in head, not reaching vent by one-half to one-fourth its length, inserted but slightly back of a vertical from anterior insertion of pectoral.

Color notes from freshly collected specimens not obtained. Specimens in alcohol (evidently much faded) are pale, with upper parts of body somewhat dusky; upper lip greenish-blue, margin of same color. This color from each lip unites behind angle of mouth into a band which extends to anterior margin of eye and passes along lower margin of eye, ending in a small, indistinct (in alcohol) area behind eye; transverse bar of same color across the chin. Back of this, on the throat, are markings of bluish-green; outer margins of dorsal and ventral and upper and lower margins of caudal fins bordered by same color, also anterior margins of pectoral and ventral fins; indistinct markings of same color appear on caudal.

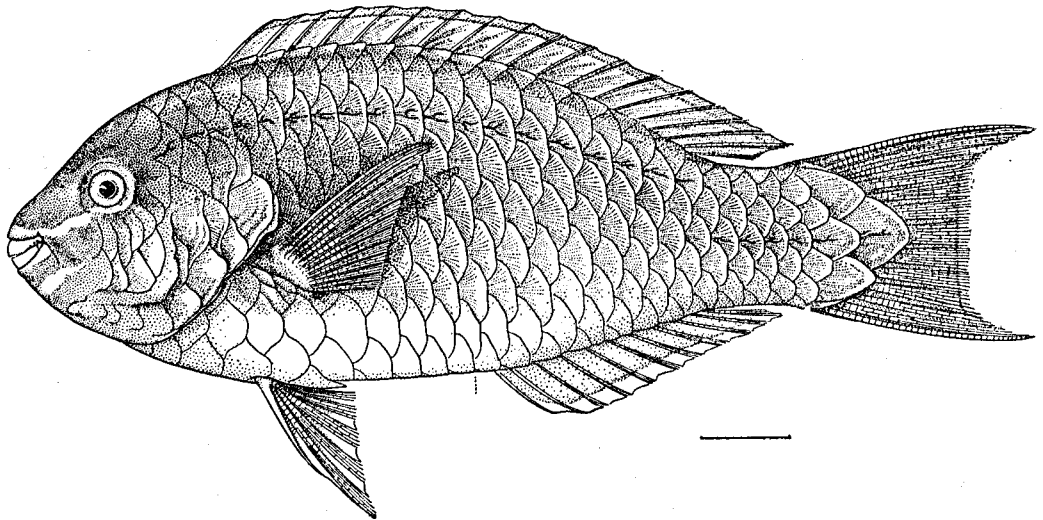


FIG. 17.—*Scarus gilberti* Jenkins, new species. Type.

This species resembles *Scarus octodon* Bleeker. Five specimens were obtained by me in 1889, and one by the *Albatross* in 1896. Type 6140, L. S. Jr. University Museum. The measurements of three are given below:

| <i>Scarus gilberti</i> . | No. 1. | No. 2. | No. 3. | <i>Scarus gilberti</i> . | No. 1. | No. 2. | No. 3. |
|---|--------|--------|--------|-----------------------------------|--------|--------|--------|
| | mm. | mm. | mm. | | mm. | mm. | mm. |
| Total length to middle of caudal. | 278 | 251 | 318 | Snout..... | 32 | 28 | 36 |
| Upper lobe of caudal produced beyond above..... | 20 | 15 | 30 | Height of first dorsal spine..... | 18 | 16 | 20 |
| Length to base of caudal..... | 220 | 208 | 255 | Height of soft dorsal rays..... | 28 | 28 | 30 |
| Head..... | 80 | 70 | 88 | Height of soft anal rays..... | 25 | 23 | 26 |
| Depth..... | 90 | 82 | 92 | Ventral..... | 50 | 43 | 59 |
| Eye..... | 12 | 12 | 14 | Pectoral..... | 54 | 53 | 68 |
| | | | | Breadth of caudal peduncle..... | 40 | 35 | 42 |

***Scarus paluca* Jenkins, new species.** Native name, *Palukaluka*. Fig. 18.

Head in body to base of caudal 3, in total to tips of middle caudal rays 3.68. Depth in body to base of caudal 2.8; in total to tips of middle caudal rays, 3.5. D. ix, 10. A. ii, 9. P. 14. Scales 24; lateral line interrupted; tubes mostly many-branched, a few single. At interruption two scales with tubes stand immediately above first two of series following interruption; scales very slightly roughened by radiating lines of granulations extending to margins of scales. Body moderately deep,

compressed; profile concave, teeth whitish, lower jaw included, no pointed tooth at angle of either jaw; upper lip double its entire length and covering little more than half of dental plate; lower lip covering half of lower plate. Cheek with 3 rows of scales, 6 in upper row, 4 to 5 in middle, 2 in lower row, which extends upon anterior limb of preopercle; posterior limb of opercle with two series of scales, anterior limb with single series; a series of 6 scales on median line before first dorsal spine. Posterior margin of caudal fin truncate, lobes not produced. Pectoral with 14 rays, its length 1.5 in head, its breadth being more than half its length; ventral 1.85 in head, not reaching vent by two-thirds its own length, its origin but slightly behind a vertical from anterior point of the base of pectoral; dorsal spines flexible, first spine less than the succeeding ones, nearly equaling the soft rays; the soft anal one-sixth higher than soft dorsal.

Coloration in life: Upper portions reddish-brown; lower parts, including ventrals and anal, a brighter red; vertical fins, and ventrals somewhat mottled, but body and head without distinct markings.

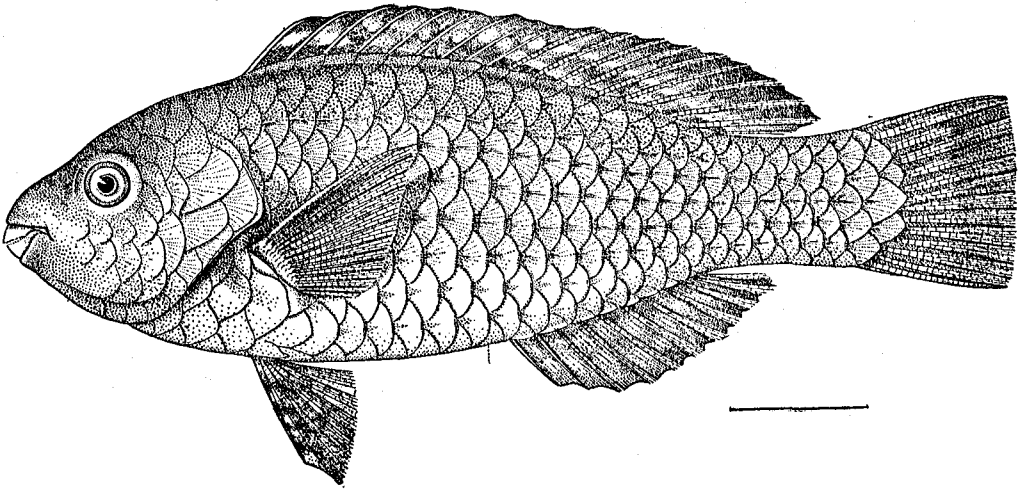


FIG. 18.—*Scarus paluca* Jenkins, new species. Type.

Type No. 6141, L. S. Jr. University Museum. One specimen was obtained by me. This fish is similar to *Scarus rubro-violaceus* (Bleeker), but differs in having 14 rays in pectoral, caudal lobes not produced, markings of fins, and in the absence of markings of body. The specimen gave the following measurements:

| <i>Scarus paluca.</i> | Milli- meters. | <i>Scarus paluca.</i> | Milli- meters. |
|---|-------------------|-----------------------------------|-------------------|
| Total length to middle of margin of caudal..... | 184 | Height of first dorsal spine..... | 14 |
| Length to base of caudal..... | 150 | Height of soft dorsal..... | 18 |
| Distance of snout to vent..... | 88 | Height of soft anal..... | 21 |
| Head..... | 50 | Ventral..... | 27 |
| Depth..... | 53 | Pectoral..... | 34 |
| Eye..... | 10 | Caudal..... | 34 |
| Snout..... | 20 | Depth of caudal peduncle..... | 23 |

Scarus ahula Jenkins, new species. Native names, *U-hu-ula*, *Pauuhumuhu*. Fig. 19.

Head in length to base of the caudal 2.8, in total length to middle of margin of caudal 3.5. Depth in length to base of caudal 2.34; in total to middle margin of caudal 3. D. IX, 10. A. II, 10. P. 14. Scales 24, lateral line interrupted; tubes single or once or twice branched; scales slightly roughened with very minute granulations extending their margins. Body deep compressed, profile slightly depressed. Teeth whitish, lower jaw included, no pointed teeth at angles of jaws. Upper lip double its entire length and covering about two-thirds of dental plate, lower lip covering about half of lower plate. Cheeks with one row of 4 scales, behind which are 2 scales placed one above the other; preopercle naked, posterior limb of opercle with 2 series, the anterior with 1 series of scales;

a series of 4 scales on median line in front of first dorsal spine. Caudal fin convex, lobes rounded, length in head 1.26; height of caudal peduncle 2 in head; pectoral 1.35 in head, breadth being more than half its length; ventral 1.8 in head, not reaching vent by about half its length, inserted on a vertical from posterior limit of base of pectoral; dorsal spines flexible, but little less in height than soft portion, which equals soft anal in height.

Coloration in life: Head, body, and fins uniformly brown, with reddish tinges, which are more pronounced on fins and throat. Base of caudal paler. No distinct markings on any part of body.

Three specimens obtained by me of a total length of 218, 192, and 156 mm., respectively. One in Dr. Wood's collection is 237 mm. The fish was not rare, as it was frequently seen in market. It is not distinguished from *Scarus paluca* and *brunneus* by the fishermen. They are exposed for sale together and bring very high prices. Type No. 6142, L. S. Jr. University Museum.

The details of the measurements of the four examined are given below:

| Scarus ahula. | No. 1. No. 2. No. 3. No. 4. | | | | Scarus ahula. | No. 1. No. 2. No. 3. No. 4. | | | |
|--------------------------------|-----------------------------|-----|-----|-----|---------------------------------|-----------------------------|-------|-----|-------|
| | mm. | mm. | mm. | mm. | | mm. | mm. | mm. | mm. |
| Total to middle of caudal..... | 224 | 192 | 156 | 237 | Height of first dorsal spine... | 22 | 17 | 17 | 21 |
| Length to base of caudal..... | 175 | 152 | 125 | 193 | Height of soft dorsal..... | 25 | 22 | 19 | 28 |
| Distance of snout to vent..... | 110 | 98 | 83 | 125 | Height of soft anal..... | 23 | 21 | 18 | 28 |
| Head..... | 62 | 55 | 45 | 70 | Ventral..... | 34 | 31 | 27 | 39 |
| Depth..... | 73 | 57 | 47 | 72 | Pectoral..... | 46 | 40 | 31 | |
| Eye..... | 11 | 10 | 9 | 11 | Caudal..... | 49 | | 31 | 44 |
| Snout..... | 27 | 23 | 18 | 29 | Depth of caudal peduncle.... | 29 | 24 | 21 | 30 |

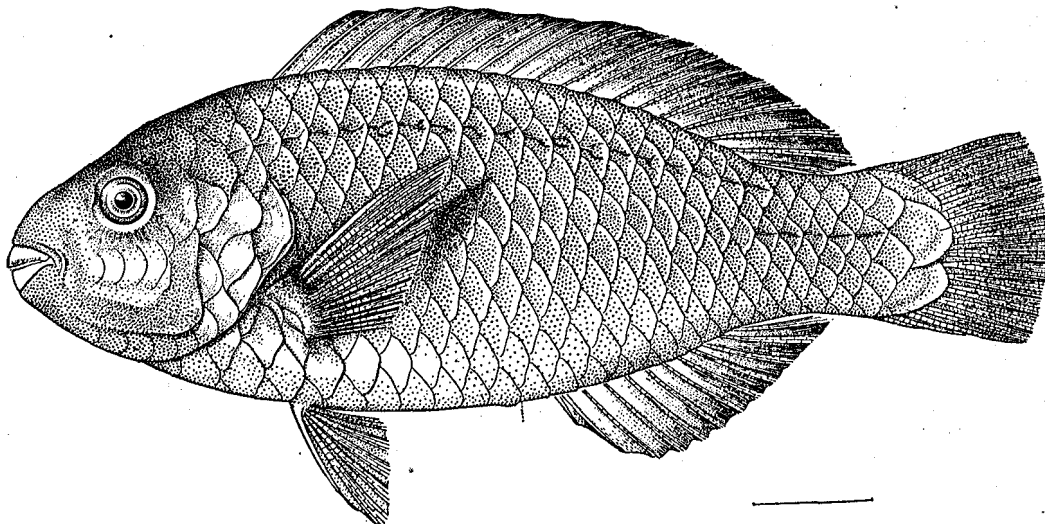


FIG. 19.—*Scarus ahula* Jenkins, new species. Type.

***Scarus miniatus* Jenkins, new species. Fig. 20.**

Head in length to base of caudal 2.74, in total length 3.5. Depth in length to base of caudal, 2.6; in total, 3.3. D. IX, 10. A. III, 9. P. 14. Scales 24. Lateral line interrupted. Body robust, deep, compressed. Teeth reddish or white; lower jaw included. A pointed tooth at angle of mouth on one side, the base of such a tooth only on other side in one specimen; only the bases of such teeth in angles of mouth in other specimen, the teeth being worn or broken off. Upper lip double only posteriorly, covering about half of dental plate of upper jaw; lower lip covering about a third of lower dental plate. Cheek with a single row of scales nearly imbedded, in one specimen so deeply imbedded that they are barely visible; no scales on lower preopercular limb; a series of scales on margin of opercle, those on its lower limbs nearly imbedded. Caudal fin slightly concave, lobes rounded, not produced; pectoral 1.35 in head, its breadth more than half its length; ventral half length of head, inserted just back of middle base of pectorals, and failing about half its own length of reaching vent; dorsal spines flexible; first few spines of dorsal, anal, and ventral with somewhat fleshy membranes.

Coloration in life: Body, head, and fins a dull red, becoming a lighter red on lower parts and darker to a dusky reddish-brown on upper portions of body; no distinct markings, except a narrow violet line on outer margins of dorsal and anal fins; iris brown.

The description is based on one specimen, 500 mm. total length, obtained by me in 1887. The measurements are given below. A somewhat smaller specimen obtained by the *Albatross* in 1896 answers to this description in every particular. The fish is apparently not common. It brings an extravagant price among the natives in the market. Type No. 12144, L. S. Jr. University Museum.

The measurements are given below:

| Scarus miniatus. | Milli-meters. | Scarus miniatus. | Milli-meters. |
|-----------------------------------|---------------|--|---------------|
| Total length..... | 500 | Height of longest ray of soft dorsal.... | 55 |
| Length to base of caudal..... | 390 | Height of soft anal..... | 45 |
| Head with flap..... | 142 | Ventral..... | 70 |
| Depth..... | 152 | Pectoral..... | 105 |
| Height of first dorsal spine..... | 35 | | |

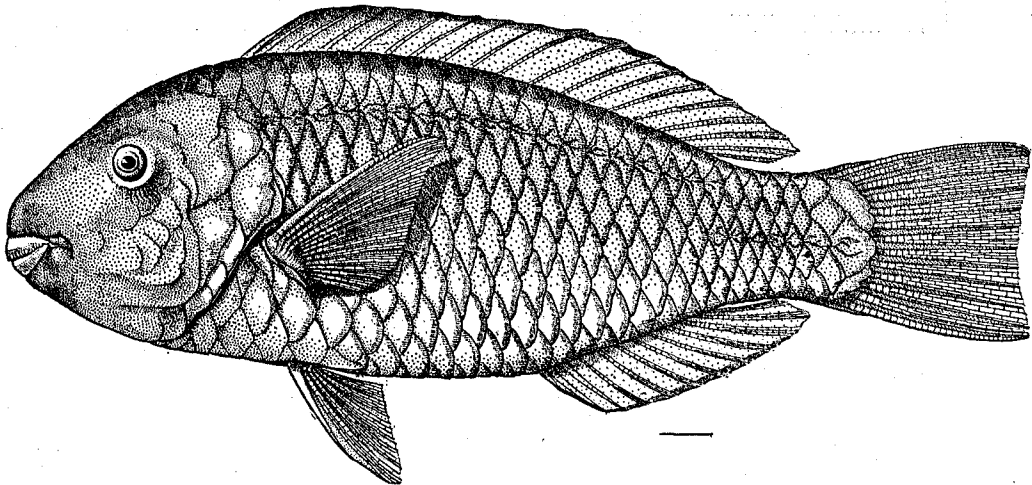


FIG. 20.—*Scarus miniatus* Jenkins, new species. Type.

***Pseudoscarus jordani* Jenkins, new species. Fig. 21.**

Head in length to base of caudal 2.7, in total length to middle margin of caudal 3.37. Depth in length to base of caudal 2.64, in total length to middle margin of the caudal 3.3. Dorsal IX, 10. Anal III, 9. Pectoral 14. Scales 24; lateral line interrupted. In this specimen two scales at the interrupted portion out of the series bear tubes. They are located one each over first two scales in the series following interruption. Tubes much branched; surfaces of scales, except at posterior margin of each, much roughened over the whole body by striations composed of rows of minute tubercles. Body robust and greatly compressed. An adipose lump over snout. Teeth green, lower jaw included; a strong tooth at each angle of upper jaw. Upper lip double only posteriorly, covering more than half of dental plate; lower lip covering less than half of dental plate. Cheek with 3 rows of scales, upper of 7 scales, middle row of 7, the lower row of 2 scales, which extend on lower preopercular limb; a series of scales along entire margin of opercle; a series of six scales on median line before first dorsal spine. Lobes of caudal fin much produced, being longer than body of the fin; height of caudal peduncle in head 2.54. Pectoral 1.5 in head, its breadth being less than half of its own length; ventral 1.75 in head, not reaching vent by one-half its own length, inserted on a vertical from about middle of base of pectoral; dorsal spines flexible; membrane of first few spines of dorsal, anal, and ventral somewhat fleshy on outer margin.

Coloration in life: General color blue, the sides of body and head rosy or pink; region of body just below posterior two-thirds of dorsal and the caudal peduncle green; iris orange; margin of upper lip orange, above which it is bright blue; margin of lower lip blue, below which is an orange area, below this again it is bright blue which changes to a lighter blue; posterior to this a pink area; a pink wavy line from angle of mouth to eye; dorsal fin pink with upper and anterior border blue, and with a blue bar along each spine; anal yellowish with bright blue anterior outer and posterior margins; ventral blue anteriorly and pink posteriorly; caudal, upper and lower borders bright blue, interior portions with reticulations of pink and blue, colors almost wholly disappearing in alcohol;

there remains the green below the posterior two-thirds of dorsal and on caudal peduncle as a pigment on the scales.

But one specimen of this brilliant fish was obtained by me, 700 mm. in length, including lobes of caudal. A high price was asked for it indicating that the natives esteem it as food. Type No. 12143, L. S. Jr. University Museum. The measurements are given below:

| Pseudoscarus jordani. | Milli- meters. | Pseudoscarus jordani. | Milli- meters. |
|--|-------------------|---|-------------------|
| Total length to middle of margin of caudal | 600 | Snout | 85 |
| Length of upper caudal lobe | 100 | Height of first dorsal spine | 30 |
| Length to base of caudal | 480 | Height of soft dorsal | 53 |
| Head | 178 | Ventral | 100 |
| Depth | 182 | Pectoral | 120 |
| Eye | 20 | Breadth of narrowest portion of caudal peduncle | 70 |

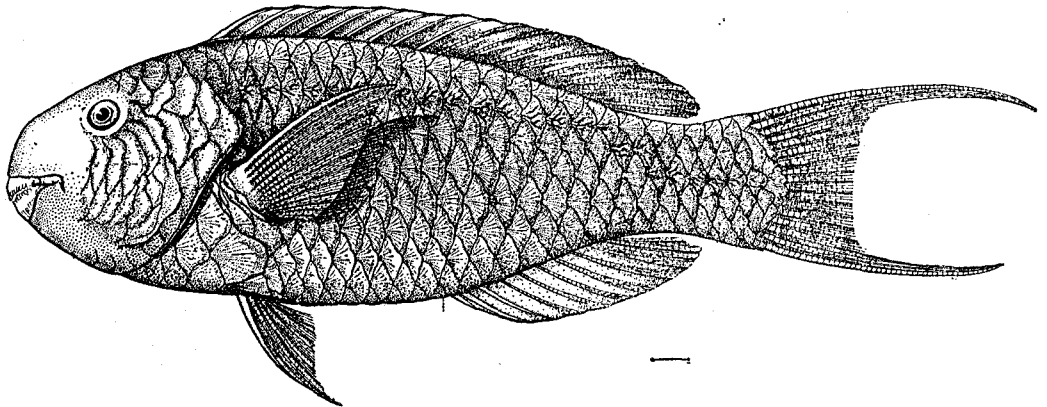


FIG. 21.—*Pseudoscarus jordani* Jenkins, new species. Type.

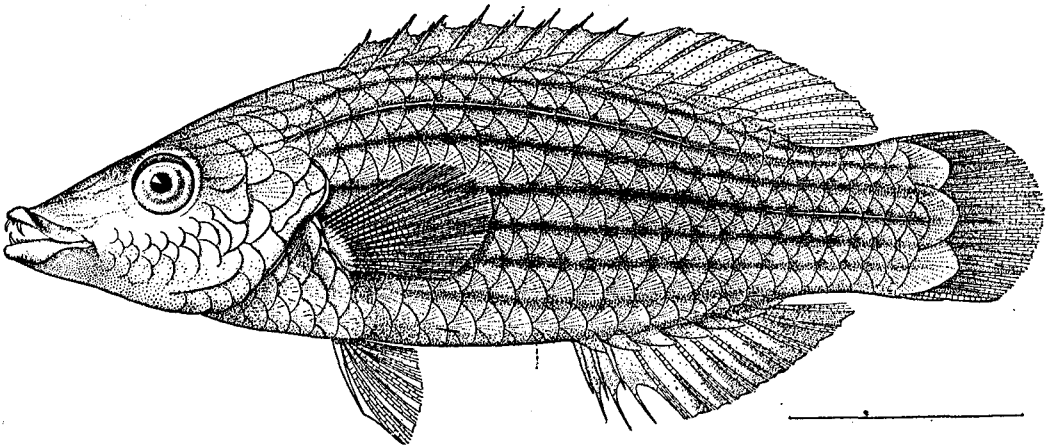


FIG. 22.—*Pseudocheilinus octotænia* Jenkins, new species. Type.

***Pseudocheilinus octotænia* Jenkins, new species. Fig. 22.**

Head in length to middle margin of caudal 3.1, to base of caudal 2.5. Depth 3.7 (3). D. ix, 11. A. iii, 9. Scales 24; lateral line interrupted; tubes single. Body moderately slender, head and snout moderately long, profile slightly concave. Teeth in a single series, no posterior canine; three pairs of large canines in anterior of upper jaw, the posterior pair of which bends outward and backward; one pair of strong canines in anterior of lower jaw. Check with mainly two rows of scales; anteriorly the scales are confused, but apparently of three series, encroaching somewhat on preopercle; opercle

with a single series of scales; a series of 5 scales in middle line before dorsal; a series of scales largely sheaths base of dorsal; a similar series sheaths to less extent the base of anal. First dorsal spine shorter than the following, which are subequal, but of less height than soft dorsal; spines pungent, each bearing a produced filament; second anal spine slightly longer than third; soft anal about equal to soft dorsal; caudal rounded, ventral does not reach vent by about half its length; pectoral nearly half of head.

Coloration in formalin: General groundwork pinkish, a conspicuous dark longitudinal band running along center of each row of scales, making eight bands on side of body, the one at base of dorsal through sheathing scales less distinct posteriorly; a similar but narrow band through middle of scales in median line before dorsal spines; faint traces of markings on head; apparently the three upper bands of body extending on to head, the cheeks and lower parts being unmarked. Spines and rays of dorsal and anal blue.

Dr. Bleeker founded the genus *Pseudocheilinus* on a single species described by him as *P. hexatania*, from Amboyna. This species is included under this genus from its closer relation to *P. hexatania*, its sole representative, than to *Cheilinus*, as shown in dentition, there being three pairs of strong anterior canines in upper jaw, the third being largest and turning outward and backward. The second anal spine is, however, only slightly longer than third, and the squamation of the cheeks shows anteriorly more than two series.

This description is based on a single specimen, 115 mm. total length. It was obtained by Mr. Keleipio, of Honolulu, for the collection of Dr. Wood in the winter of 1899. Type No. 6122 L. S. Jr. University Museum. The measurements follow:

| <i>Pseudocheilinus octotania</i> . | Milli- meters. | <i>Pseudocheilinus octotania</i> . | Milli- meters. |
|---|-------------------|------------------------------------|-------------------|
| Total length to middle margin of caudal | 115 | Height of ninth dorsal spine..... | 8 |
| Length to base of caudal | 92 | Height of soft dorsal | 12 |
| Head | 37 | First anal spine..... | 7 |
| Depth | 31 | Second anal spine..... | 9 |
| Eye..... | 7 | Third anal spine..... | 8 |
| Snout..... | 15 | Soft anal..... | 13 |
| Snout to vent..... | 60 | Ventral..... | 16 |
| Depth of caudal peduncle | 15 | Pectoral..... | 20 |
| Height of first dorsal spine..... | 5 | | |

LELAND STANFORD JR. UNIVERSITY, May 26, 1899.