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Holacanthus guezei, a new angelfish from Reunion

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Abstract. — Description of a new Angelfish from off Reunion Island, in moderate deep waters, belonging to *Holacanthus* Lacepède, 1803. A short survey of the actual state of Pomacanthid classification is given. This new species raises to seventy-three the total number of described Angelfishes species.

Résumé. — Description d'une espèce nouvelle de Pomacanthe, découverte dans les eaux relativement profondes de l'île de La Réunion et appartenant au genre *Holacanthus* Lacepède, 1803. La position générique retenue tient compte des vues de Fraser-Brunner, qui sont provisoirement acceptées en l'attente d'une révision générale du groupe. Cette description porte à soixante-treize le nombre total des espèces valides de Pomacanthes actuellement décrites.

Fraser-Brunner (1933) revised the angelfishes ; he recognized a total of forty-two species, grouping them in seven genera. In 1934 *Genicanthus semifasciatus* (Kamohara) was described, and in the same year von Bonde described two new pomacanthids, though both have since been referred to synonymy. From that date until 1950 no additions were made to the family, and one might have presumed that the definitive classification had been reached for the group, or at least that few undescribed species remained in the family. Such a conclusion might seem warranted because most pomacanthids are such strikingly beautiful species and so popular as aquarium fishes and as photographic subjects that one could hardly imagine that many remained in the sea to be discovered. It is therefore astonishing that thirty valid additions to the family have been made in the period 1950 to the present. Five of these represent species erroneously regarded as synonyms by Fraser-Brunner. The others have been described as new. Our description of *Holacanthus guezei* herein raises the total number of recent species in the Pomacanthidae to seventy-three. This is still not the end point for the group, however, as we are aware of three other species waiting description.

Fraser-Brunner's generic classification has not been universally accepted. Smith (1955) elevated two of Fraser-Brunner's subgenera (*Arusetta* and *Apolemichthys*) to genera, separated those species of *Centropyge* with one or more strong spines on the preorbital into the genus *Xiphipos* Jordan and Jordan, recognized the genus *Pomacanthodes* Gill for the Indo-Pacific species previously placed in *Pomacanthus* except *semicirculatus* which he classified with his new species *filamentosus* in the new genus *Pomacanthops* (Klausewitz, 1969, has since referred *filamentosus* to synonymy, but he accepted *Poma-*

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ca thops). KLAUSEWITZ and WONGRATANA (1970) also recognized *Apolemichthys* as a genus, and KLAUSEWITZ (1972) included *Pomacanthodes* as a valid genus as well. YASUDA and TOMINAGA (1969), on the other hand, tentatively referred all Indo-Pacific pomacanthids to a single genus, *Holacanthus*.

We believe that SMITH and KLAUSEWITZ have devided the pomacanthid genera too finely, but we also regard YASUDA and TOMINAGA's concept of a single genus as untenable. We favor the retention of FRASER-BRUNNER's view of pomacanthid genera at least until a thorough study is made of all aspects of the generic classification. Accordingly, our new species is placed in *Holacanthus*, not *Apolemichthys*.

Counts of pectoral rays, scales, spinules on cheek bones, and gill rakers were made on the left side of specimens. The pored lateral-line scales end beneath the soft portion of the dorsal fin and commence again mid-laterally on the caudal peduncle ; only the scales of the anterior series were counted. Counts of scale rows were difficult to make with accuracy. The upper-limb gill-raker count is given first ; the raker at angle is included in the lower-limb count.

Standard length (SL) was measured from the front of the upper lip to the base of the caudal fin (end of hypural plate). The head length was taken from the front of the upper lip to the end of the opercular membrane. The depth was measured just in front of the anal fin to the extreme base of the dorsal spines. The length of the caudal peduncle was measured horizontally from a vertical at rear base of anal fin to caudal fin base. Measurements of the dorsal and anal spines and soft rays were made from distal tips to extreme bases of these elements (aided by X rays).

Data presented in parentheses refer to paratypes (when different from the holotype). More measurements are given in Table 1 than are presented in the text.

The holotype is deposited at the Bernice P. Bishop Museum in Honolulu (BPBM) and the paratypes at the Muséum national d'Histoire naturelle in Paris (MNHN) and the U.S. National Museum of Natural History in Washington, D. C. (USNM).

Holacanthus guezei, n. sp.

(Fig. 1)

HOLOTYPE : BPBM 20030, 92,5 mm SL. Réunion, west coast off Baie de la Possession, 70 m, gill net, P. GUÉZÉ, 21 October 1973.

PARATYPES : MNHN 1976-370, 101 mm SL ; MNHN 1976-371, 79 mm SL ; 1976-372, 76 mm SL ; MNHN 1976-373, 99 mm SL ; USNM 216845, 100 mm SL — all from off Baie de la Possession and Baie de Saint-Paul, Réunion, 60 to 80 m, gill net, P. GUÉZÉ, spring 1973 to winter 1973-74.

DESCRIPTION

Dorsal rays XIV, 17 (last divided to base) ; anal rays III, 18 (18 or 19) (last divided to base) ; pectoral rays 17 (upper two and lowermost unbranched ; upper three rays of one paratype unbranched) ; pelvic rays I, 5 ; pored lateral-line scales 33 (33 or 34) ; diagonal scale rows from upper end of gill opening to base of caudal fin 50 (48-50) ; scales above lateral line to origin of dorsal fin 9 ; scales below lateral line to origin of anal fin 28 28

TABLE I. — Proportional Measurements (mm) of Type Specimens of *Holacanthus guezei* expressed as a Percentage of the Standard Length.

	BPBM 20030	MNHN 1976 372	MNHN 1976 371	MNHN 1976 373	MNHN 1976 370	USNM 216.845
Standard length	92,5	76	79	ca 99	101	100
Depth	59,3	59,2	60,8	57,8	52,4	60,5
Width	17,2	18,2	16,1	17,5	16,2	17,5
Head length	28,1	27,0	26,5	30,9	29,7	28,0
Snout length	7,9	5,3	5,1	protruded	protruded	7,5
Diameter of orbit	9,7	9,9	10,7	9,6	9,9	9,5
Bony interorbital width	9,8	9,5	9,4	9,6	9,9	9,6
Length of upper jaw	7,3	6,6	7,0	7,6	7,9	7,5
Least depth of caudal peduncle	15,0	15,1	15,2	15,1	13,9	15,0
Length of caudal peduncle (horizontal)	7,8	7,9	8,2	7,6	7,4	7,5
Snout to origin of dorsal fin	38,5	39,5	39,9	41,8	36,7	39,0
Snout to origin of anal fin	64,6	65,2	63,4	66,0	65,7	69,0
Snout to origin of pelvic fin	39,1	40,8	39,2	41,8	45,5	39,0
Length of dorsal fin base	72,8	70,3	72,2	70,7	66,2	71,0
Length of anal fin base	40,8	40,7	41,7	40,3	36,1	39,0
Length of dorsal spine : 1	9,9	8,9	12,0	8,9	10,1	9,0
Length of dorsal spine : 2	16,5	15,8	15,9	16,7	15,3	14,0
Length of dorsal spine : 3	18,9	19,1	19,6	18,7	17,8	17,5
Length of dorsal spine : 4	19,3	21,1	20,3	20,8	18,8	19,0
Length of dorsal spine : 14	22,4	22,4	23,4	21,7	21,3	21,5
Length of longest dorsal ray	24,7	broken	27,9	23,8	21,2	22,5
Length of anal spine : 1	13,7	13,2	15,8	16,2	14,8	13,6
Length of anal spine : 2	20,1	broken	22,2	22,2	19,3	19,5
Length of anal spine 3 :	23,2	25,0	26,6	23,3	23,7	22,5
Length of longest anal soft ray	26,4	26,4	25,4	23,8	23,2	24,0
Length of caudal fin	27,0	24,9	24,0	broken	25,6	26,0
Length of left pectoral fin	28,1	31,4	29,6	29,4	29,8	29,0
Length of pelvic fin spine	21,9	24,3	24,0	broken	20,8	22,0
Length of pelvic fin	31,2	38,2	35,4	33,3	30,6	33,0
Length of angular preopercular spine	11,9	8,5	9,5	12,4	11,8	12,0

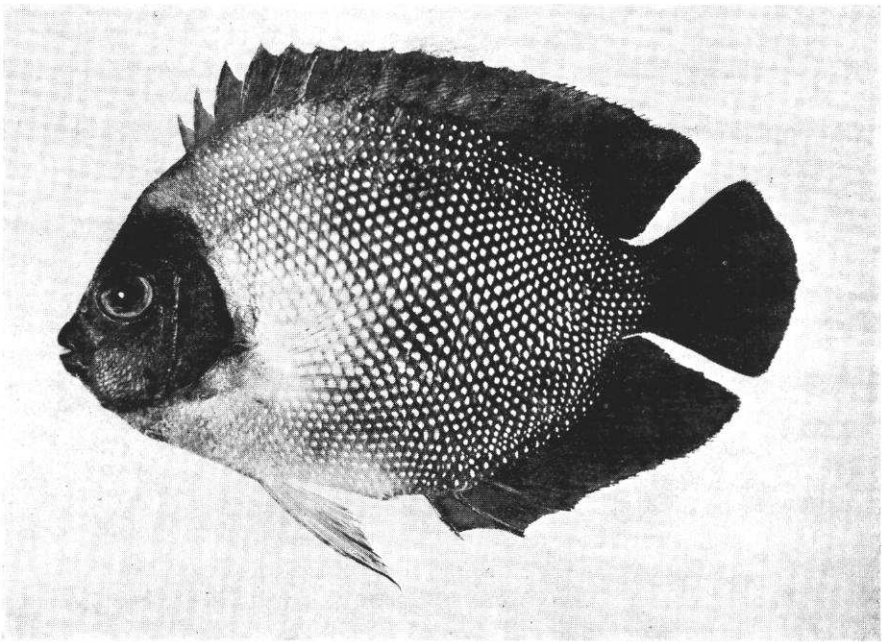

FIG. 1. — Holotype of *Holacanthus guezei*, 92,5 mm SL, Réunion, BPBM 20030.

or 29) ; vertical scale rows on opercle 9 ; gill rakers 3 + 13 (3 or 4 + 11 or 12) ; branchiostegal rays 6 ; vertebrae 10 + 14.

Body deep, the depth 1.69 (1.64-1.91) in SL (MNHN 1976-370 notably more elongate than other types), and compressed, the maximum width 3.38 (3.23-3.77) in depth ; head length 3.56 (3.23-3.78) in SL ; dorsal profile of forehead steep, forming an angle of about 65 degrees to the horizontal ; snout 3.56 (3.18-3.73) in head length ; diameter of orbit 2.9 (2.5-3.2) in head length ; interorbital space moderately convex, the bony width 2.9 (2.8-3.2) in head length ; caudal peduncle deeper than long, the least depth 1.9 (1.7-2.1) in head length.

Mouth small, terminal, the gape horizontal, the maxilla reaching a vertical at front of posterior nostril. Upper lip broader than lower, the basal third scaled, the width contained 2.6 in diameter of orbit of holotype. Teeth slender, elongate (the longest 3.6 in orbit of holotype), close-set, flexible in jaws, tricuspid (the large central cusp notably longer than the small lateral ones), in 4 rows in jaws (except posteriorly), about 44 in outer row of upper jaw and 50 in lower jaw of holotype. No teeth on roof of mouth. Tongue short and broadly rounded.

Nostrils anterior to center of eye, the posterior the larger, slightly oval, with no rim, the anterior in a membranous tube with a flap postero-dorsally ; distance between nostrils about equal to half greatest diameter of posterior nostril ; distance from edge of orbit to edge of posterior nostril about equal to least diameter of posterior nostril. Circumorbital

pores prominent, espacially one above posterior nostril ; another large pore in front of anterior nostril. Gill membranes narrowly attached to isthmus. Longest gill filament on first arch contained 2 times in orbit of holotype. Gill rakers not long, the largest 6.5 in orbit of holotype.

Opercle ending posteriorly in a single flat blunt spine. A prominent large spine at corner of preopercle (without a groove), longer than orbit, the spine length (measured along upper edge) contained 2.4 (2.3-3.2) times in head length ; upper margin of preopercle finely serrate, with 27 irregular serrae on holotype ; lower preopercular margin of holotype with three spines, the more posterior the largest, 3.2 in length of long spine at corner of preopercle ; subopercle with seven small serrae ; interopercle with five moderate serrae ; preorbital with 12 serrae, none enlarged, the diagonal posterior margin free for about half the distance from lowermost point to orbit ; exposed margin of supracleithrum with 15 serrae, and margin of posttemporal with 7 serrae.

Scales coarsely ctenoid (up to 25 ctenii on margins), the exposed portion of each scale strongly ridged ; auxiliary scales present only dorso-anteriorly on body ; head fully scaled except lower lip and distal two-thirds of upper lip ; dorsal and anal fins scaled nearly to margins except anteriorly in spinous portion where fin membranes are deeply incised ; caudal fin scaled about two-thirds distance to posterior margin ; pectoral fins with small scales basally ; pelvic fins with small scales extending out on rays on outer surface, but none on membranes.

Lateral line strongly arched, ending in a sharply descending portion beneath base of sixth or seventh dorsal soft rays ; a few vestigial pored scales in a detached horizontal row mid-laterally on caudal peduncle.

Caudal fin rounded, with no filament at upper corner, its length 3.7 (3.8-4.2) in SL. Origin of dorsal fin slightly anterior to a vertical at upper end of gill opening. Dorsal spines progressively longer, the last two or three subequal, 4.5 (4.3-4.7) in SL ; longest dorsal soft ray (sixth to tenth) 4.2 (3.6-4.7) in SL ; first three interspinous membranes of dorsal fin incised one-half or more length of spines ; posterior margin of soft portions of dorsal and anal fins angular, the longest dorsal ray reaching as far posterior as half the length of caudal fin and the longest anal ray nearly reaching a vertical at lower corner of posterior margin of caudal fin ; origin of anal fin below base of eleventh or twelfth dorsal spines ; third anal spine the longest, 4.3 (3.8-4.4) in SL ; length of longest anal soft ray (ninth to eleventh) 3.8 (3.8-4.3) in SL pectoral fins moderately pointed, reaching to or slightly beyond a vertical at origine of anal fin, their length 3.55 (3.2-3.45) in SL ; pelvic fins long, reaching posterior to origin of anal fin, their length 3.2 (2.6-3.3.) in SL.

Color of holotype in alcohol : head dark brown, the lips and opercular membrane blackish ; body light brown anteriorly, shading to dark brown posteriorly, with a pale spot on each scale ; dorsal and anal fins brown anteriorly, shading to dark brown posteriorly ; caudal fin very dark brown except for narrow pale distal margin ; paired fins pale, the filamentous tips of longest pelvic rays dusky.

Color of the holotype from an Ektachrome transparency taken by the senior author when the specimen was fresh : head dark purplish brown, the lips and opercular membrane blackish ; body yellowish brown anteriorly, shading to dark brown posteriorly, with a yellow spot on each scale (spots smaller peripherally) ; dorsal and anal fins brownish yellow anteriorly, shading posteriorly to dark brown, with a blue outer margin and a black sub-

marginal line ; caudal fin black or nearly so, the posterior margin pale blue ; pectoral fins with yellow rays and hyaline membranes ; pelvic fins yellow, the tips of longest rays blackish ; iris yellowish.

Remarks

Holacanthus guezei is known only from the island of Reunion, though it certainly would be expected at Mauritius and possibly also Madagascar. Evidently it is a species of moderately deep water (60-80 m). It was not observed by the senior author in six weeks of continuous diving in Reunion and Mauritius down to, but not exceeding 60 m.

H. guezei is one of a complex of six species of the genus which includes the wideranging Indo-Pacific *H. trimaculatus* Cuvier and Valenciennes (after Lacepède), *H. xanthurus* Bennett from Ceylon, India, and the Maldives, *H. xanthotis* Fraser-Brunner from the Red Sea and Gulf of Aden, *H. xanthopunctatus* (Burgess) from Oceania, and *H. armitagei* (Smith) which is known from a single specimen from the Seychelles (the possibility that *armitagei* is an aberrant color form of *trimaculatus* cannot yet be discounted). *H. trimaculatus* is the only species of this group that also occurs at Reunion.

H. guezei differs from all of these species in having longer paired fins (reaching generally to or beyond a vertical at origin of anal fin), longer and more angular soft portions of the dorsal and anal fins, lacking a short filament from the upper corner of the caudal fin (as seen on *trimaculatus*, *armitagei*, and *xanthotis*), in having larger lower preopercular spines, having auxiliary scales only antero-dorsally on the body (*trimaculatus* and *xanthopunctatus* have these scales over most of the body ; they are largely wanting in *xanthotis* and *xanthurus*), and in color. It is closest in color to *H. xanthopunctatus* but differs significantly in having a dark head and lacking a pale-edged black spot on each side of the nape near the median line and over the supracleithrum (such spots also present on *trimaculatus* ; *xanthurus* and *xanthotis* have a bright yellow spot over the exposed part of the posttemporal, just above gill opening.

We are pleased to name this new species in honor of Paul Guézé who collected all of the known specimens and made them available to us for study.

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