SHORT PAPER

DESCRIPTION OF THE MALE OF THE HAWAIIAN ANGELFISH *GENICANTHUS PERSONATUS*

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ABSTRACT

Only four female specimens were available for the description of the Hawaiian angelfish *Genicanthus personatus* by Randall (1975). Since the eight other species of the genus are all sexually dichromatic, the existence of a male of different color was predicted. Two male specimens of this species were recently trawled at a depth of 51 m near Nihoa Island in the Leeward Hawaiian Islands. They were light gray with a broad black band across the base of the caudal fin like the females, but in sharp contrast to the females, the front of the head and most of the pectoral, dorsal, and anal fins were yellow-orange. Also, the males were more elongate, the depth 2.1 in SL, and the caudal fin was lunate instead of emarginate due to a prolongation of the lobes of the fin.

The first pomacanthid fish of the genus *Genicanthus* from the Hawaiian Islands, *G. personatus*, was described recently (Randall, 1975) from four female specimens taken in the depth range of 23-84 m. The lack of a male specimen was unfortunate, because it was anticipated the male would be different. Randall wrote, "In view of the marked sexual dichromatism of all the other species of the genus, it seems likely that the male of *G. personatus* will also have a different color pattern." He added, "Of the known species of *Genicanthus*, this species most resembles the '*fucosus*' form of *G. semifasciatus*. If there is a different male color phase of *G. personatus*, it might be expected to have numerous poorly defined bars on the upper part of the body."

The first two specimens of *personatus* to be catalogued after the description were also females. One of 72 mm SL was collected in 28 m of water off Oahu between Waianae and Campbell Industrial Park by Fern Kealoha in 1973. It was maintained in an aquarium for an unspecified period. Upon the death of the fish, it was presented to the Bishop Museum by Glenn Takeshita. It is now catalogued under BPBM 19208. The second fish (BPBM 19647, 107 mm SL) was collected at 20 m in a cave at Moku Manu, Oahu by John Earle and Dan Johnson in September 1975. It was 52 m from the entrance to the cave (the divers were using a light). The fish was placed in an aquarium but would not take food. It survived without feeding for 2 months.

On 26 October 1975 two males of *G. personatus* (BPBM 19648, 153 and 155 mm SL) were captured during cruise 67 at station 15 of NOAA research vessel TOWNSEND CROMWELL in the Leeward Hawaiian Islands. The capture locality was 23°08'N, 161°53'W over the insular shelf north of Nihoa Island at a depth of 51 m. The bottom temperature as indicated by XBT drops was 25°-26°C. The specimens were taken during a 20-minute haul (median time 2053 h) with a high-opening bottom fish trawl with a 20.1-m headrope and a 25.3-m footrope constructed of 100-mm mesh webbing in the body and cod end.

The first prediction, that the male would be different, proved to be true; the second, that it would have bars on the body, did not.

Description.—Dorsal rays XIV,17; anal rays III,17; pectoral rays 17; scale rows from upper end of gill opening to caudal base 47-48; gill rakers 4 + 12; serrae on upper margin of preopercle 34-36.

Depth of body 2.12-2.13 in SL; width of body 2.76-2.77 in depth; head length 3.65-3.69 in SL; snout length 2.89-2.93 in head; diameter of eye 3.36-3.44 in head; bony interorbital width 2.76-2.89 in head; length of preopercular spine 2.24-2.27 in head; least depth of caudal peduncle 2.01-2.03 in head; caudal fin lunate, the caudal concavity 3.48-3.83 in SL; length of pectoral fin 1.25-1.28 in head; last dorsal spine 1.51-1.54 in

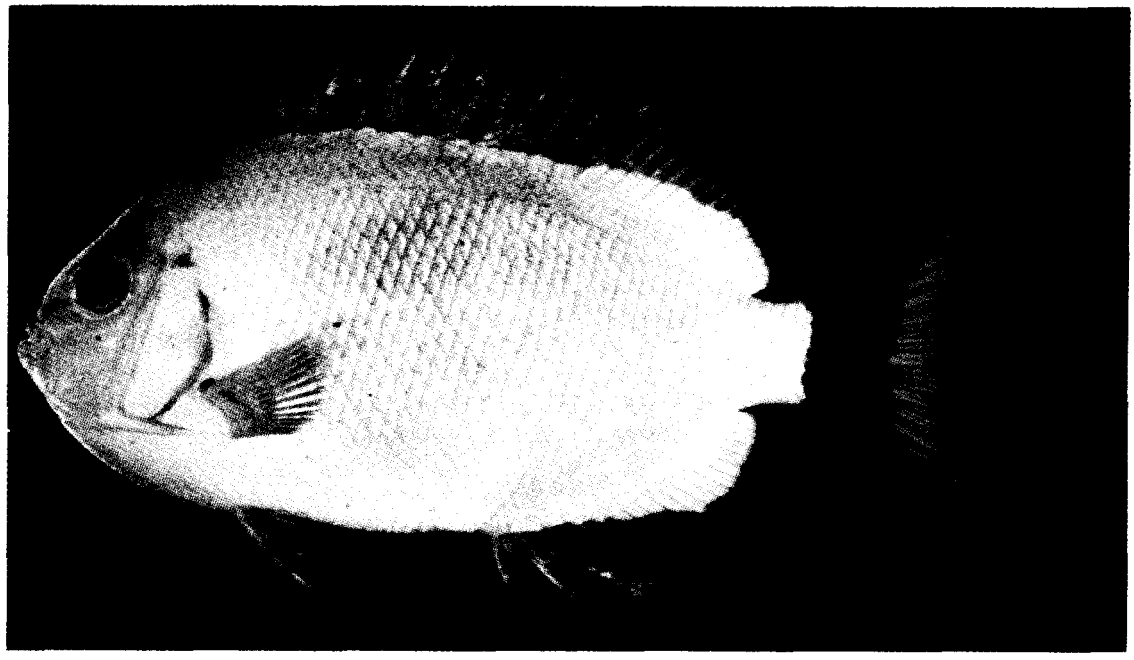

Figure 1. The 155-mm SL male *Genicanthus personatus* (BPBM 19648).

head; longest dorsal soft ray 5.20-5.38 in SL; third anal spine 1.25-1.29 in head.

Coloration of the fresh 155-mm SL specimen is shown in Figure 1. Color in alcohol: body light gray, the edges of the scales brownish gray except posterior third of caudal peduncle which is black (merging with black at base of caudal fin); head brownish gray posteriorly, abruptly pale (nearly white) anterior to upper margin of preopercle and a wavy line of demarcation extending dorsally from upper end of margin nearly to mid-dorsal line, thence to origin of dorsal fin (thus leaving a narrow median pale band on nape running anterior to fin); isthmus and ventral part of thorax pale nearly to pelvic fins; opercular membrane pale; dorsal and anal fins pale except for a basal zone of grayish brown which in the dorsal begins at base of 12th dorsal spine (and for the anal the base of the first anal ray) and broadens to half the height of these fins on about posterior half of the soft portions; caudal fin black on nearly the basal half, some blackish extending out onto lobes, gray on rest of fin; paired fins pale. All the pale areas on the preserved specimens are yellow-orange in life (except outer fourth of pectoral fins which is clear), the remainder light gray except for the broad black bar on caudal peduncle and base of caudal fin and some light orangish color on the caudal lobes.

Remarks.—The males of *G. personatus* share the light gray color of the body and posterior head of the females, the broad black band across the base of the caudal fin and adjacent caudal peduncle, and yellow-orange pelvic fins. They differ in the yellow-orange anteriorly on the head and over much of the dorsal, anal, and pectoral fins. The yellow-orange coloration of the pelvic fins extends to the fin insertions of the males. There are also some important morphometric differences. The body of the males is more elongate (about 2.1 in SL compared to 1.8) and the caudal fin lunate (primarily as a result of prolongation of the upper two and lower

two branched rays) instead of emarginate. Also the preopercular spine of the males is longer, the snout shorter, and the dorsal and anal fins shorter.

The total fish catch of the haul resulting in the two specimens of *G. personatus* was 32 kg. Twenty-two other species of fishes were taken, of which the dominant ones (by weight) were *Mulloidichthys vanicolensis* (*auriflamma* of most recent authors), *Acanthurus olivaceus*, *Naso lopezi*, *Flammeo scythrops*, *Chaetodon miliaris*, *Priacanthus alalaua*, and *Heniochus acuminatus*.

The northwestern portion of the Hawaiian Archipelago comprises numerous peneplained banks with mean depths ranging from about 25 to 65 m. Limited evidence suggests that these smooth bank tops are almost entirely devoid of sediments and have sparse numbers of the corals *Porites lobata* and *Pocillopora eydouxi*. Two small samples of algae taken from the trawl at stations in 51 m near Nihoa Island and 29-37 m near Gardner Pinnacles yielded the following readily identifiable forms: *Amansia glomerata*, *Ceramium* sp., *Champia* sp., *Chondria* sp., *Codium reediae*, *C. saccatum*, *Dictyopteris repens*, *Dictyosphaeria cavernosa*, *Halimeda gracilis*, *H. discoidea*, *Herposiphonia* sp., and *Microdictyon secthellianum*. In these and other hauls in the general area of collection, the dominant (by weight) algae in the trawl catches were *Codium*, *Halimeda*, and *Amansia*.

The stomach of one of our two specimens of *G. personatus* was empty; the other was filled with the green alga *Codium* sp.; in addition there were a few shrimp larvae and fish eggs.

G. personatus was named for the black masklike area on the anterior upper part of the head of the female, which encloses the eye. The male has replaced the black with a yellow-orange mask. The common name "Masked Angelfish" is proposed for this species.

Acknowledgments

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Literature Cited

Randall, J. E. 1975. A revision of the Indo-Pacific angelfish genus *Genicanthus*, with descriptions of three new species. Bull. Mar. Sci. 25: 393-421.

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