

## *Bodianus prognathus* (Labridae, Pisces), a New Longnose Hogfish from the Central Pacific<sup>1</sup>

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**ABSTRACT:** *Bodianus prognathus*, a new species, is described from Fanning Atoll, Line Islands, Central Pacific. It is distinct from its congeners by having an extremely elongate snout. It resembles *B. diana* in color pattern.

THE GENUS *Bodianus* of the labrid tribe Hypsigenyini was recently revised by Gomon (1979). The description of *Bodianus prognathus* herein brings the number of known species of the genus to 29. This new species is known only from Fanning Atoll, Line Islands, Central Pacific (3°55' N, 159°23' W). It is unique within the genus in having a greatly elongated snout. Although the configuration is overtly similar to that of *Gomphosus varius*, also of the family Labridae, there is no doubt that *B. prognathus* is allocated to the proper genus (Martin Gomon, personal communication). It will be included in the forthcoming review by M. Gomon of the osteology and phylogenetic relationships of *Bodianus* spp.

Meristics are presented in Table 1. The upper rudimentary ray is included in the pectoral ray count and rudimentary gill rakers are included in counts. Proportional measurements are presented in Table 2 and were made as follows: Standard length (SL) was taken from the most anterior point of the upper lip to the midbase of the caudal fin (end of hypural plate). The depth of the body was the maximum depth from the base

of the dorsal fin. The width of the body was measured just behind the gills. Head length is from the tip of the upper lip to the end of the opercular membrane. Snout length was measured from the anterior midpoint of the orbital rim to the tip of the upper lip. Upper jaw length was measured from the most anterior end of the upper lip to the lower posterior edge of the maxilla. The inter-orbital width is the bony width. The diameter of the orbit is the greatest inside diameter. The length of the caudal peduncle is measured horizontally between verticals at the rear base of the anal fin and base of caudal fin. Caudal peduncle depth is the least depth. Predorsal length is from the base of the first dorsal spine to the tip of the upper lip. Prepelvic length is from the base of the first pelvic spine to the tip of the upper lip. Preanal length is from the base of the first anal spine to the tip of the upper lip. The length of all spines and rays is taken from the base to the tip. Fin base lengths were measured from the base of the first spine to the last ray. Pectoral and pelvic fin lengths were taken as the length of the longest rays.

### *Bodianus prognathus*, new species

Figures 1–4; Tables 1, 2

#### *Holotype*

MCZ 54340, 178 mm SL, Fanning Atoll, Line Islands, Central Pacific (3°55' N, 159°23' W), 10–15 m, spear, P. S. Lobel, October 1978.

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TABLE 1  
 MERISTICS OF TYPE SPECIMENS OF *Bodianus prognathus*

	HOLOTYPE		PARATYPES			
	MCZ 54340	MCZ 56322	BPBM 20773	BPBM 20773	BPBM 20775	BPBM 20775
Standard length (mm)	178	37	52	78	135	157
Dorsal fin	XII,10	XII,10	XII,8	XII,10	XII,10	XII,10
Anal fin	III,12	III,12	III,12	III,12	III,12	III,12
Pectoral fin	16	16	16	16	16	16
Lateral-line scales	33	33	32	33	33	33
Transverse scales	15	14	14	15	15	15

TABLE 2  
 PROPORTIONAL MEASUREMENTS EXPRESSED AS A PERCENTAGE OF THE STANDARD LENGTH FOR THE TYPE SPECIMENS OF *Bodianus prognathus*

	HOLOTYPE		PARATYPES			
	MCZ 54340	MCZ 56322 Juvenile	BPBM 20773 Juvenile	BPBM 20773	BPBM 20775	BPBM 20775
Standard length (mm)	178	37	52	78	135	157
Depth of body	28%	31%	25%	29%	28%	26%
Width of body	12	12	8	13	13	13
Head length	36	35	25	37	38	37
Snout length	17	9	13	16	17	18
Upper jaw length	14	8	10	13	14	15
Orbit diameter	5	9	9	8	6	6
Bony interorbital width	7	8	8	7	7	7
Caudal peduncle length	18	14	19	17	17	18
Caudal peduncle depth	13	19	23	14	13	14
Predorsal length	40	39	39	43	38	41
Prepelvic length	38	38	61	41	45	42
Preanal length	59	60	40	63	60	62
Dorsal fin base length	41	41	42	42	44	43
1st dorsal spine length	5	9	5	6	5	5
2nd dorsal spine length	5	10	7	7	6	6
3rd dorsal spine length	6	11	7	8	7	8
Last dorsal spine length	10	15	17	14	13	14
Anal fin base length	21	23	19	23	23	21
1st anal spine length	6	6	6	6	5	6
3rd anal spine length	12	16	13	16	15	13
Pelvic fin length	13	15	15	14	16	18
Pelvic spine length	9	12	11	11	11	10
Pectoral fin length	13	17	17	17	16	16
Upper caudal fin rays length	15	19	15	17	9	13
Middle caudal fin rays length	13	19	15	17	9	13



FIGURE 1. *Bodianus prognathus*, Paratype MCZ 56322, 37 mm SL.

### Paratypes

MCZ 56322, 37 mm SL, 30 m, quinaldine, October 1978; BPBM 20773, 2 specimens, 52 and 78 mm SL, 43–66 m, quinaldine, July 1976; BPBM 20775, 2 specimens, 135 and 157 mm SL, 10–15 m, spear, July 1976; BPBM 22963, 179 mm SL, 10–15 m, spear, October 1978 (specimen cleared and stained); other collection data same as those of holotype.

### Diagnosis

Snout extremely elongate, especially in adults, its length about 40 percent of the head length. Corner of mouth anterior to the forward margin of the orbit by about half the eye diameter. Depth of body in relation to SL about 27 percent. Dorsal fin rays XII,10 (one specimen XII,8); anal fin rays III,12; pectoral fin rays 16; lateral-line scales 32–33; transverse scales 14–15.

### Description

Scaly basal sheath on dorsal and anal fins moderately high, about  $2\frac{1}{2}$  scales in depth; distal outline of sheaths nearly straight anterodorsally and posterodorsally. Predorsal scales extending forward to above the posterior margin of orbit on dorsal midline on head; scales lateral to midline reaching

only slightly farther forward; scales very small on top of head anterior to point midway between posterior edge of preopercle and posterior edge of opercle. Cheek scales reaching forward on upper side of mouth to point below or slightly in advance of anterior edge of orbit; scales reaching free preopercular edge posteriorly and ventrally; subopercle completely scaled; scales reaching forward on lower jaw slightly in advance of posterior corner of mouth. Each lateral-line scale usually with a singular laterosensory canal tube flexed dorsally near posterior end of scale.

Posterior edge of preopercle smooth.

Upper jaw with two anterior conical teeth and two lateral canines at anterior margin (one of each on both sides of jaw), about equal size; followed by a single row of reduced teeth (approximately 30–40) barely discernable as stubs. At the posterior edge of the mouth, on the premaxillary bone, one large canine pointing straight anteriorly and positioned so as to bisect the angle of the jaw. Lower jaw with two anterior conical teeth about half the size of the next two lateral canines, which are about the same size as those in the upper jaw, followed by a row of reduced stubby teeth (approximately 30–40) as in upper jaw. Other characteristics for *Bodianus prognathus* are like those de-

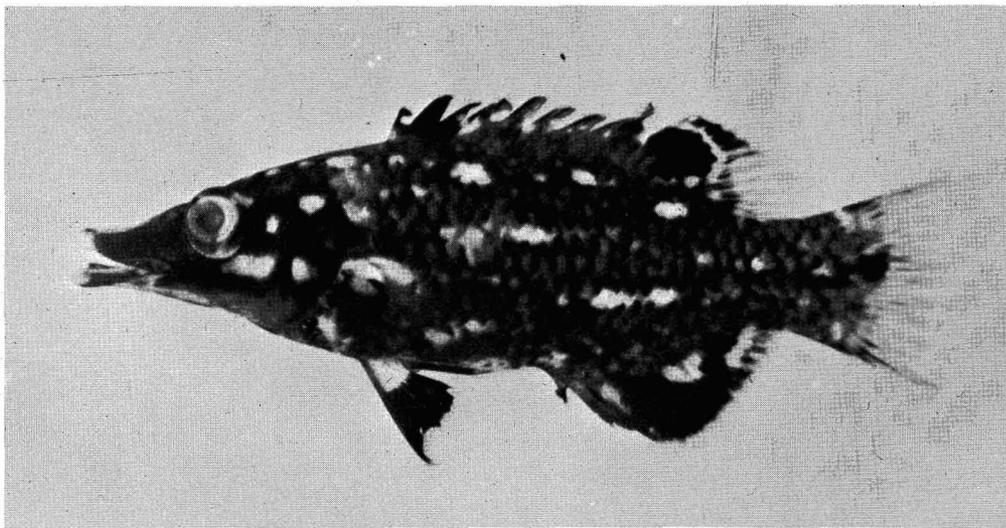


FIGURE 2. *Bodianus prognathus*, Paratype BPBM 20773, 52 mm SL.

scribed for *B. diana* and the genus (see Gomon 1979, also Gomon and Randall 1978).

Gill rakers on first arch 16, based on four specimens examined.

#### Coloration

Small juvenile (37 mm SL, Figure 1).

**LIFE COLOR:** Body black with six large white spots (size of eye or larger) located symmetrically along the dorsal and ventral margins of the body. Mouth and snout white changing to black in a vertical line at the corner of the mouth. Area around base of pectoral fin white with small black spot at base of fin. Pectoral fin and caudal fin translucent.

**COLOR IN ALCOHOL:** Basically unchanged, though somewhat faded.

Large juvenile (52–78 mm SL, Figures 2 and 3).

**LIFE COLOR:** Body black with three rows of unevenly spaced white spots. Posterior portion of caudal fin translucent. Dorsal fin spines dusky, two black spots (about size of eye) cover spines 1–3 and about the first five

rays. Anal fin mostly dusky with an indistinct black spot in the anterior portion near the edge, and with a white spot at base, posterior part translucent. Pelvic fins two-thirds black, with basal third white. Pectoral fin colorless, dark black spot at base. A black spot located at middle point at posterior end of caudal fin base.

**COLOR IN ALCOHOL:** All black spots remain prominent but a little faded. Body dusky with pigment concentrated along the posterior margin of scales. White spots faded to opaque. Tail transparent.

Adult (135–178 mm SL, Figure 4).

**LIFE COLOR:** Body overall red, darker on the head and dorsally than on the ventral flanks. Eye red. Posterior margin of scales darkly pigmented red. Dark spot at base of pectoral fin. One white spot at base of pectoral fin. Three white spots just underneath dorsal fin: first spot below about spines 3–5; middle spot midway of dorsal; last spot at end of dorsal fin. All fins, except pectoral, red with translucent posterior sections. Pectoral fin clear.

**COLOR IN ALCOHOL:** Body overall yellowish, each scale darkly pigmented along posterior margin. Dorsal and anal spines dusky.

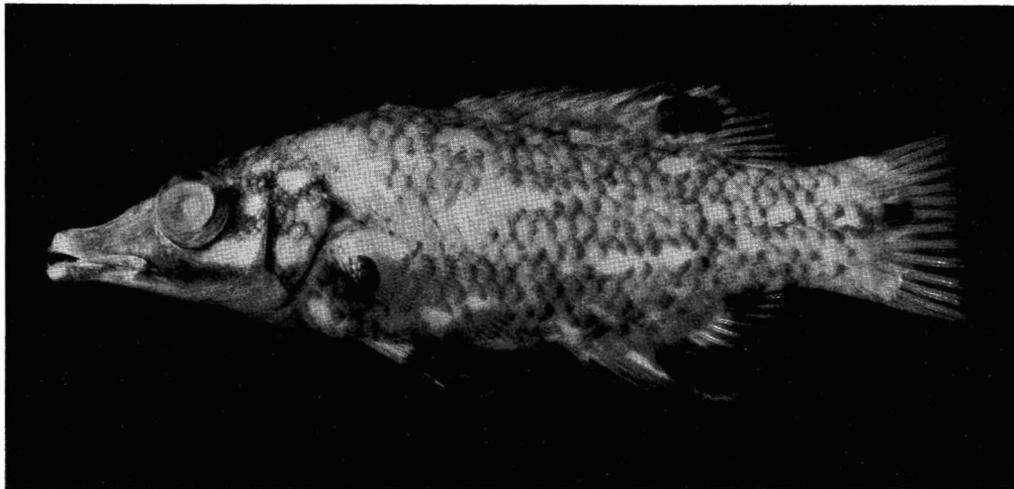


FIGURE 3. *Bodianus prognathus*, Paratype BPBM 20773, 78 mm SL.

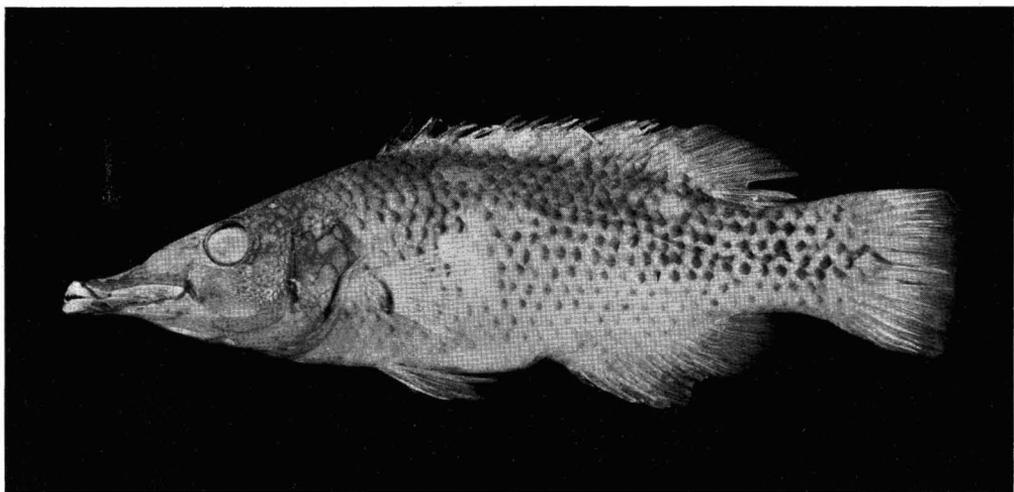


FIGURE 4. *Bodianus prognathus*, Holotype MCZ 54340, 178 mm SL.

### Sex

Only two of the six specimens were clearly identifiable as to sex; BPBM 20775 (135 mm SL) was female and BPBM 20775 (157 mm SL) was male. The other specimens did not have well-developed gonads, making sex identification uncertain, but specimens BPBM 20773 (52 mm SL, Figure 2) and MCZ 54340 (178 mm SL, Figure 4) appear to be female

and BPBM 20773 (78 mm SL, Figure 3) appears to be male (Arnold Suzumoto, BPBM, and Karsten Hartel, MCZ, personal communications).

### Comparisons

*Bodianus prognathus* is morphologically similar to *B. diana*. The two species are unique in having, on the posterior side of the

prominent anterior canines, numerous teeth, uniform in size, and evenly spaced on the dental ridge (see Gomon 1979). *B. prognathus* differs most markedly from *B. diana* by the relative length of the snout. In *B. diana*, the posterior corner of the mouth is situated below the point immediately posterior to the forward extent of the orbit (Gomon 1979). In *B. prognathus*, the posterior corner of the mouth is anterior to the forward margin of the orbit by about half the eye diameter's length. Juveniles of *B. diana* and *B. prognathus* resemble *B. axillaris*, *B. mesothorax*, and, to a lesser degree, *B. neilli* in overall appearance and similarity of juvenile color pattern (see Gomon 1979).

#### Etymology

*Prognathus* is from the Greek and means having prominent or projecting jaws (pro = forth; gnathos = jaws).

#### Field Notes

*Bodianus prognathus* inhabits spaces around folioid corals and rarely swims out in the open. Adults were found between 7 and 20 m depth. Juveniles, however, were seen only below 30 m depth. This species was not abundant. Only one or two individuals were seen in an area along about 100 m of reef.

During an extensive visual survey of fishes at Fanning Atoll, Chave and Eckert (1974) spotted a species they recorded as *Bodianus diana* in the same vicinity where I found *B. prognathus*. However, I have not seen *B. diana* at Fanning Atoll during a total of six months (summers of 1976 and 1978) of collecting fishes there. I think it is probable that Chave and Eckert actually observed *B. prognathus* and not *B. diana*, which closely resembles it in color. (See Masuda et al. 1975

for color photographs of *B. diana* and other *Bodianus* spp.; Gomon 1979 illustrates ontogenetic color patterns).

The gut content of one specimen contained various crustaceans, mostly small xanthid crab parts. Other specimens were not examined.

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#### LITERATURE CITED

- CHAVE, E. H., and D. B. ECKERT. 1974. Ecological aspects of the distributions of fishes at Fanning Island. *Pac. Sci.* 28: 297-317.
- GOMON, M. F. 1979. A revision of the labrid fish genus *Bodianus*, with an analysis of the relationships of other members of the tribe Hypsigenyini. Ph.D. Thesis, University of Miami.
- GOMON, M. F., and J. E. RANDALL. 1978. Review of the Hawaiian fishes of the labrid tribe Bodianini. *Bull. Mar. Sci.* 28: 32-48.
- MASUDA, H., C. ARAGA, and T. YOSHINO. 1975. Coastal fishes of southern Japan. Tokai University Press, Tokyo.