

Symphurus bathyspilus: A New Cynoglossid Flatfish (Pleuronectiformes: Cynoglossidae) from Deepwaters of the Indo-West Pacific

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Symphurus bathyspilus, which attains standard lengths up to 121 mm, is described on the basis of 84 specimens collected in deep waters (248–500 m) in the Philippine Archipelago and off Indonesia. This species is characterized by the combination of a predominant 1–2–2 pattern of interdigitation of dorsal pterygiophores and neural spines; 14 caudal-fin rays; 91–100 dorsal-fin rays; 78–87 anal-fin rays; 50–54 total vertebrae; five hypurals; black peritoneum; uniformly bright reddish-brown (freshly captured) to darker reddish-brown ocular side sometimes with faint incomplete cross-bands; uniformly yellowish to straw-colored blind side with numerous small reddish-brown speckles overlying regions of proximal pterygiophores of the blind sides of the dorsal and anal fins; with dorsal and anal fins darker reddish-brown anteriorly, gradually fading to a pale reddish color in their posterior regions; and with the outer surface of the ocular-side opercle yellowish with reddish-brown speckles. Among congeners, the new species is most similar in some meristic features to those of *Symphurus woodmasoni* but differs markedly in its ocular- and blind-side coloration, in the pigmentation of its dorsal, anal, pelvic, and caudal fins and its yellowish and speckled ocular-side outer opercular surface.

ALCOCK (1889) described and provided an outline illustration of the tonguefish *Aphoristia* (= *Symphurus*) *woodmasoni* based on a single specimen collected at 896 m (490 fathoms) in the Indian Ocean off the Andaman Islands. In 1892, Alcock reported fin-ray counts for three additional specimens of *Symphurus woodmasoni* captured in about 869 m (475 fathoms) in the Bay of Bengal. In subsequent works, he (Alcock, 1894, 1899) provided an additional illustration and descriptive information regarding pigmentation features of this species that he determined to be useful in distinguishing it from other tonguefishes captured in Indian waters.

Since these earliest captures of *S. woodmasoni* reported by Alcock, others (Regan, 1908; Norman, 1928, 1939) have collected or studied specimens they identified as *S. woodmasoni* that were taken in other deepwater locations in the Indian Ocean. However, many of the specimens identified as *S. woodmasoni* in these later reports have subsequently been found to represent other tonguefish species. For example, Norman (1939) identified a tonguefish captured in 1046 m off southern Arabia as *S. woodmasoni*, but Chabanaud (1954) discovered that this specimen actually represented an undescribed species, which he named *Symphurus arabicus*. Regan (1908) and Norman (1928) also identified a deepwater tonguefish collected from an unspecified depth (“over 123 fathoms”) on Saya de Malha Bank in the Indian Ocean as *Aphoristia woodmasoni*, but again Chabanaud (1955a) sub-

sequently reidentified this specimen and designated it as the holotype of his *Symphurus sayad-emalhensis*.

The identities of deepwater tonguefishes identified by Chabanaud (1955b,c) as *S. woodmasoni*, which were collected in several deepwater sites in the Philippine Archipelago and off Indonesia, are also problematic. Based mostly on meristic and some morphometric data, Chabanaud concluded that these tonguefishes were *S. woodmasoni*. Munroe (1992), in his survey of interdigitation patterns of dorsal pterygiophores and interneural spines for species of *Symphurus*, used most (82/85 specimens) of the same *Albatross* material considered by Chabanaud (1955c) to be *S. woodmasoni*. Later, Munroe reexamined these Philippine specimens and noted distinct differences in their pigmentation compared with that reported for *S. woodmasoni* in the original description (Alcock, 1889) and subsequent works (Alcock, 1894, 1895, 1899). Resolution of the identity of the Philippine material, which represents the bulk of the specimens reported as *S. woodmasoni* by Chabanaud, has been hindered by the fact that the holotype of *S. woodmasoni* was not available to this study. The only comparative material of this species available to us was a specimen of *S. woodmasoni* collected by Alcock from the Bay of Bengal (BMNH.1928.3.20.73) and color photographs of both the blind- and ocular-sides of the holotype of *S. woodmasoni*. These materials allowed direct comparisons between the Philippine and Indonesian specimens with features of the ho-



Fig. 1. Ocular and blind sides of the holotype of *Symphurus bathyspilus* (USNM 113185; 96.6 mm SL) collected off northern Mindanao in the Philippine Archipelago.

lotype and one other nontype specimen of *S. woodmasoni*. Information garnered from this comparison, together with reexamination of the original description by Alcock (1899), counts reported by Alcock (1892) for other specimens of this species, and examination of the color description provided in these accounts and in keys published in subsequent works on Indian tonguefishes (Alcock, 1894, 1899) enables us to conclude that most of the Philippine and Indonesian specimens reported as *S. woodmasoni* in the literature of Chabanaud (1955b,c) and Munroe (1992) were misidentified and actually represent an undescribed species. The objective of this paper is to formally describe this species.

MATERIALS AND METHODS

Methods for counts and measurements and general terminology follow those of Munroe (1998). Terminology for interdigitation patterns of proximal dorsal pterygiophores and interneural spines (ID pattern) follow Munroe (1992). All measurements refer to standard length unless noted otherwise. Measurements were taken to nearest 0.1 mm with dial calipers or ocular micrometer. Morphometric features

are expressed either as measurements in thousandths of standard length (SL) or thousandths of head length (HL). Capture depths originally reported in fathoms were converted to the nearest meter.

Pigmentation descriptions are based on fishes fixed in ethyl alcohol (*Albatross* specimens) or those fixed in formalin and stored in ethyl alcohol. Maturity was estimated by macroscopic examination of extent of posterior elongation of the ovary and presence of developing ova in the ovaries (both easily observed by using light transmitted through the body). Because no obvious differences in sizes of testes between immature and mature males were apparent, estimates of maturity were based entirely on females. Institutional abbreviations follow Leviton et al. (1985). Comparative material for all other Indo-Pacific species of *Symphurus* was included in Munroe (1992).

Symphurus bathyspilus n. sp.
Figures 1–2; Tables 1–2

Aphoristia sp. Weber, 1913:445 (Banda Sea, 462 m)

Symphurus woodmasoni (not of Alcock). Cha-

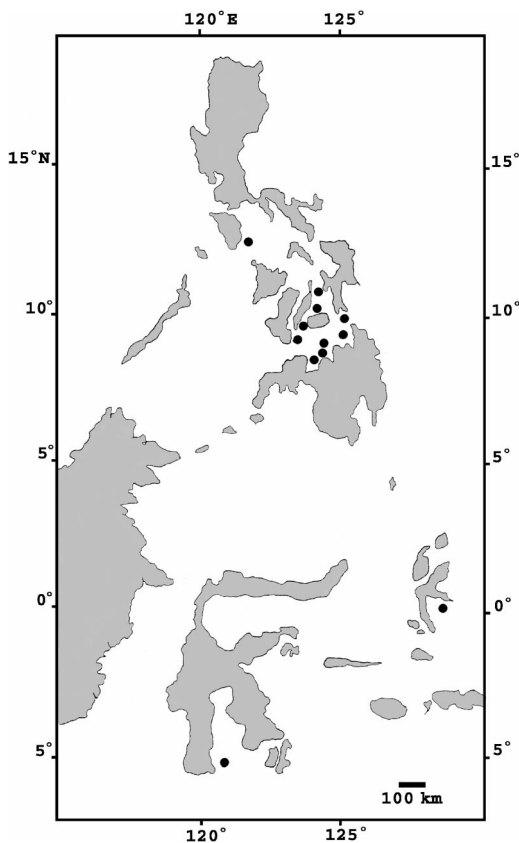


Fig. 2. Collection locations in the Philippine Archipelago and off Indonesia for *Symphurus bathyspilus*. Spots may indicate more than one collection.

banaud, 1954:465 (in part; vertebral counts for six specimens from Philippines); Chabanaud, 1955b:44 (reidentification of *Aphoristia* sp. specimen in Weber, 1913); description with fin-ray and vertebral counts; specimen faded; Banda Sea, 462 m; vertebral counts included for six additional specimens from Philippines based (?; no listing of catalog numbers for specimens) on Chabanaud (1954); Chabanaud, 1955c:30 (in part, more than one species included in species account; description with counts, vertebrae, color description; sex ratio; no figs.); Chabanaud, 1956:92 (in part; vertebral counts for 6 specimens from Philippines) based (?; no listing of catalog numbers for specimens) on Chabanaud, 1954; Munroe, 1992:367, 379 (in part; ID pattern, meristic features; depth distribution); based in part on 80 specimens of Chabanaud, 1955c.

Holotype.—USNM 113185 (96.6 mm SL), Philippine Archipelago *Albatross* Station 5503:

Northern Mindanao and vicinity, 8°36'26"N, 124°36'08"E, 416 m; 4 August 1909.

Paratypes.—Forty-eight specimens. Philippine Archipelago: USNM 138060, 24 (79.4–102.6 mm SL), N. Mindanao, 8°37'37"N, 124°35'E, 394 m, 4 August 1909. USNM 138061, 16 (71.0–102.4 mm SL), same data as holotype. MNHN 50-1, (100.2 mm SL), same data as holotype. MNHN 50-3, (99.5 mm SL), same data as holotype. MNHN 2003-1078, 3 (87.5–94.1 mm SL), same data as USNM 138060. AMS I.43130-001, 3 (86.9–92.4 mm SL), same data as USNM 138061.

Diagnosis.—*Symphurus bathyspilus* is characterized by the combination of a 1-2-2 ID pattern, 14 caudal-fin rays, 91–100 dorsal-fin rays, 78–87 anal-fin rays, 50–54 total vertebrae, a pointed snout, black peritoneum, and distinctive features of its ocular- and blind-side coloration (in alcohol) including ocular-side background coloration uniformly bright (freshly captured) to darker reddish-brown with some specimens having a series of faint, reddish-brown, incomplete crossbands; outer surface of ocular-side opercle yellowish with reddish-brown speckles; dorsal and anal fins darker reddish-brown anteriorly, fading to a pale reddish posteriorly; blind side uniformly yellowish to straw-colored, except proximal pterygiophore regions of dorsal and anal fins with dense covering of reddish-brown speckles; both sides of dorsal, anal, and pelvic fins covered with dense concentrations of small red speckles; speckling especially dense on blind-side body in region around anus and also on both sides of pelvic fin.

Description.—Based on 84 specimens. A species (Fig. 1) that attains standard lengths to about 121 mm. Summary of meristic features presented in Table 1. Predominant ID pattern 1-2-2 (69/84 = 82.1%). Caudal-fin rays 14 (one specimen with 12). Dorsal-fin rays 91–100. Anal-fin rays 78–87. Pelvic-fin rays 4. Total vertebrae 50–54; abdominal vertebrae 9(3 + 6). Hypurals 5. Longitudinal scale rows 76–92. Scale rows on head posterior to lower orbit 16–22, usually 17–20. Most specimens were taken in dredges or deepwater trawls. Because of abrasion and damage that specimens sustained during collection, and also the age of most specimens (90+ years in preservative), scale counts or scale pocket counts could not be made for most specimens.

Proportions of morphometric features are presented in Table 2. Body moderately elongate; greatest depth in anterior one-third to one-half of body; body depth tapering slowly an-

TABLE 1. FREQUENCY OF OCCURRENCE FOR SELECTED MERISTIC FEATURES OF *Symphurus bathyspilus*. Abbreviations defined in text. *indicates value for holotype (USNM 113185).

ID Pattern 1-2-2-2-2*	1-2-2-1-2		1-2-2-2-1			1-2-1-2-2		1-2-1-3-2		1-1-3-1-2		<i>n</i>					
69	7		5			1		1		1		84					
Caudal-fin rays 14*			12							<i>n</i>							
79			1							80							
Dorsal-fin rays 91	92	93*	94	95	96	97	98	99	100	<i>n</i>							
3	4	7	24	21	18	3	—	1	1	82							
Anal-fin rays 78	79	80	81*	82	83	84	85	86	87	<i>n</i>							
1	6	7	22	23	17	3	1	—	1	81							
Total vertebrae 50	51*		52			53		54		<i>n</i>							
2	28		45			6		2		83							
Longitudinal scale count 76	77	78	79	80	81	82	83	84	85	86	87	88	89*	90	91	92	<i>n</i>
1	1	1	1	4	2	7	4	4	3	2	1	2	2	4	—	1	40
Head scale count 16	17		18*			19		20		21		22		<i>n</i>			
3	5		11			17		6		1		1		44			

teriorly and posteriorly. Preanal length slightly greater than body depth. Head wide; head width slightly greater than head length. Lower head lobe wider than upper head lobe, considerably shorter than postorbital length. Snout short and pointed, its length slightly longer than eye diameter. Dermal papillae (missing or damaged in most specimens) present on blind-side snout. Ocular-side anterior nostril tubular, elongate; when depressed posteriorly reaching,

or nearly reaching, anterior margin of lower eye. Blind-side anterior nostril slender, tubular, elongate, readily distinguishable from dermal papillae. Posterior margin of maxilla usually reaching point between verticals through anterior margin of pupil and midpoint of lower eye. Lower eye large; eyes subequal in position with anterior margin of lower eye between verticals through anterior margin of eye and anterior margin of pupil of upper eye. Eyes contiguous,

TABLE 2. MORPHOMETRICS FOR HOLOTYPE (USNM 113185) AND 48 PARATYPES OF *Symphurus bathyspilus*. SL in mm; characters 2–9 in thousandths of SL; 10–13 in thousandths of Head length; *n* = number of specimens measured.

Character	Holotype	Paratypes			
		<i>n</i>	Range	Mean	SD
1. Standard length	96.6	48	71.0–102.6	92.7	6.96
2. Body depth	236	48	218–258	232.5	10.47
3. Preanal length	245	46	225–274	247.5	12.91
4. Caudal fin length	142	7	111–195	146.6	27.31
5. Head length	222	48	210–246	220.9	8.18
6. Head width	233	43	206–262	228.7	11.17
7. Upper head lobe	102	43	89–130	110.4	8.01
8. Lower head lobe	120	43	101–140	118.2	9.32
9. Postorbital length	151	48	134–172	150.7	7.34
10. Snout length	164	48	129–197	165.2	14.20
11. Upper jaw length	206	47	190–245	221.4	13.32
12. Eye diameter	136	48	122–163	142.3	9.45
13. Postorbital length	682	48	636–716	678.8	17.86

or nearly so, for most of their lengths; with 2–3 rows of small ctenoid scales in narrow interorbital space, and with small scales covering upper aspects of eyes. Pupillary operculum absent. Dorsal-fin origin located at point between verticals through posterior margin of pupil and posterior margin of upper eye. Anteriormost dorsal-fin rays more widely separated at their bases than successive rays. Dorsal- and anal-fin rays without scales on both sides of body. Caudal fin elongate, with several rows of small ctenoid scales on basal one-third to one-half of blind and ocular sides of fin.

Four rows of well-developed teeth on blind-side dentary; 2–3 rows of well-developed teeth on blind-side premaxilla. Two rows anteriorly and one row posteriorly of well-developed teeth on ocular-side dentary and premaxilla.

Color in alcohol.—Ocular side generally dull reddish-brown with darker reddish-brown speckles; occasional specimens also exhibiting faint traces of incomplete, darker, reddish-brown crossbands. Head pigmentation generally similar to that of body. Outer surface of ocular-side opercle yellowish with reddish-brown speckles that are more concentrated towards the posterior margin (speckles best observed under magnification). Inner surface of ocular-side opercle sparsely pigmented; inner surface of blind-side opercle unpigmented. Lips and chin region with dense brown pigmentation. Anterior nostril yellowish-white. Isthmus lightly pigmented with a few scattered melanophores. Blind-side body uniformly yellowish-whitish to straw-colored, with widely scattered, reddish-brown speckles; speckling more concentrated on blind-side body region overlying dorsal and anal pterygiophores and on region around anus. Slight hint of reddish coloration in blind-side musculature still visible in some specimens. Pelvic fin with dark-brown, or reddish-brown speckling on both sides, and with dark pigmentation extending onto skin surrounding base of fin. Anterior and mid-regions of dorsal and anal fins darker reddish-brown on both ocular- and blind-sides of fins, intensity of pigmentation fading posteriorly with darker reddish-brown speckles concentrated at bases of fin rays and extending distally along fin rays to about their midpoints. Some specimens with speckling densely concentrated along fin rays only, others with dense speckling on both fin rays and connecting membrane. Caudal fin light brown on both sides of fin; occasional specimens almost completely lacking caudal-fin pigmentation. Peritoneum dark black anteriorly and spotted posteriorly (spots best observed upon dissec-

tion); dark black anterior region easily observed through body wall on both sides of body.

Chabanaud (1955c:30–31) described pigmentation of the *Albatross* specimens, which had been stored in alcohol for nearly 50 years before he had a chance to examine them, as “eyed side is of bright reddish brown, generally even, but often enough varied with dark brown marble-like veins. The fins are brown, more or less dark, but becoming lighter from front to back, so the caudal fin is often colorless. The blind side is colorless and the reddish tint of the musculature is readily visible. The peritoneum is generally black.” We have examined these specimens after almost 50 years of preservation since Chabanaud first reported on them and our observations on their coloration generally agree with those of Chabanaud, although, as one might expect, the intensity of coloration we observe is much less than that reported by him. The bright, reddish-brown pigmentation he described has now faded to a generally dull reddish-brown in specimens that still retain pigmentation.

Size and sexual maturity.—Specimens examined were 65.7–121.0 mm SL. Five immature females (71.0–100.8 mm SL) showed little elongation of the ovaries. Of 34 mature females, 18 (75.9–115.6 mm SL) had elongate ovaries, and 16 (77.1–121.0 mm SL) were gravid. Males ($n = 43$, 65.7–102.6 mm SL) attained nearly similar sizes to those of females.

Etymology.—From the Greek *bathys* meaning deep, in reference to deepwater habitat, and *spilos*, meaning spot, in reference to the numerous, small, reddish speckles on the blind-side body, especially on and around the fins and in the skin overlying the pterygiophores.

Distribution and ecology.—Of 83 specimens with reliable capture locations, 81 were taken in the Philippine Archipelago, with most (80 specimens) collected between Mindoro and Mindanao islands (Fig. 2). Two specimens were collected in southern Indonesian waters; one taken between Gillolo and Makyan islands in the Molucca Sea, the second specimen in the Banda Sea. *Symphurus bathyspilus* is a deepwater tonguefish with specimens collected from 248–500 m. The majority of specimens ($n = 73$) were collected between 335 and 431 m. Only three specimens (two at 248, and one at 293 m) were taken shallower than 300 m, whereas seven specimens from six different collections were taken deeper than 450 m, with only two of these specimens taken deeper than 490 m. Small fishes

and crustaceans appear in digestive tracts of several specimens that were radiographed. Little else is known regarding the biology of this species.

Remarks.—Based on the findings presented in this study, previous reports (Chabanaud, 1955b,c; Munroe, 1992) of *S. woodmasoni* from waters off Indonesia and in the Philippine Archipelago are in error. Thus far, the only confirmed records of occurrence for *S. woodmasoni* are those from the Indian Ocean (Alcock, 1889, 1892, 1896). The holotype of *S. woodmasoni* and two of three additional specimens identified as *S. woodmasoni* by Alcock are deposited in the fish collection of the Zoological Survey of India and were not available to this study. However, Alcock (1889) provided sufficient detail in the original description and data from the Bay of Bengal specimen we examined provide additional information to identify and distinguish *S. woodmasoni* from other deepwater tonguefishes. Alcock (1889) indicated (p. 294) that the type specimen has 14 caudal-fin rays, 90 dorsal-fin rays, 78 anal-fin rays, and about 85 scales on the body. In 1892, Alcock reported the capture of three additional specimens of *S. woodmasoni* taken at 475 fathoms in the Bay of Bengal. For these specimens, he listed 14 caudal-fin rays, 90–98 dorsal-fin rays and 78–84 anal-fin rays. The specimen of *S. woodmasoni* we examined (which may be one of the three nontype specimens examined by Alcock) has the following meristic features: a 1-2-2-1-2 ID pattern, 14 caudal-fin rays, 99 dorsal-fin rays, 85 anal-fin rays, 81 scales in longitudinal series, 10 abdominal vertebrae and 55 total vertebrae. Alcock described the type specimen of *S. woodmasoni* as having a snout terminating in an abrupt straight edge. The squared-off snout is clearly evident in the line drawing of the type appearing as figure 1 in his plate XVII and is also evident in the specimen we examined. In the color description of the type specimen, Alcock stated that it (in spirit) has “bluish-grey on both sides, with a broad blue-black band all round each side, occupying the whole extent and breadth of the regions of the interneural and interhaemal spines, and very numerous parallel black lines extending from snout to caudal through the middle of each row of scales; opercle black; fins black, except the caudal which is grey.” In 1894, Alcock provided a key to species of *Aphoristia* (= *Symphurus*) from Indian waters in which he distinctly emphasized the importance of blind-side coloration as a key character for distinguishing *A. woodmasoni* (and *A. gilesii*) from two other species lacking dark, blind-side coloration. Ad-

ditionally, Alcock also emphasized that the ocular-side coloration of *A. woodmasoni* did not include cross-stripes (cross-bands in the present terminology). This information was reiterated by Norman (1928) in his key to Indian species of *Symphurus*. Unfortunately, the specimen of *S. woodmasoni* we examined is completely faded and without any distinctive pigmentation.

Western Pacific records for *S. woodmasoni* are based on misidentified specimens of *S. bathyspilus* and other species. Of 85 specimens collected during the *Albatross* Philippine Expedition that Chabanaud (1955c) had originally identified as *S. woodmasoni*, 80 are now reidentified as *S. bathyspilus* (see Specimens examined). Of 93 tonguefishes Munroe (1992) reported as *S. woodmasoni* in his survey of interdigitation patterns in species of *Symphurus*, 86 specimens (including most of the *Albatross* specimens identified as *S. woodmasoni* by Chabanaud) are now identified as *S. bathyspilus*, and two others (USNM 113183 and AMS I.22825–024) may also be this species. Only one of seven other specimens listed as *S. woodmasoni* by Munroe (1992), BMNH 1928.3.20–73 from the Bay of Bengal, is that species. At least two other species (identifications unknown, but not *S. woodmasoni* or *S. bathyspilus*) are represented among the remaining four specimens (UMMZ 159738 and ZMUC 86361, 86366, 86367).

Comparisons.—The Indo-West Pacific is home to 16 described (Munroe, 1992) and a number of undescribed species (TAM, unpubl. data) of *Symphurus* characterized by having 14 caudal-fin rays. Seven of these 16 species in addition to *S. bathyspilus* also possess a 1–2–2 ID pattern as do two Atlantic Ocean species, *Symphurus nebulosus* and *Symphurus ligulatus*. Compared with the nine species featuring this combination of meristic features, *S. bathyspilus* has lower and non-overlapping fin-ray and vertebral counts than do seven of these others (*Symphurus variegatus*, *Symphurus strictus*, *Symphurus australis*, *Symphurus marmoratus*, *Symphurus maldiviensis*, *Symphurus nebulosus*, and *Symphurus ligulatus*). Meristic features of *S. bathyspilus* overlap only those of *S. sayademalensis* from the Indian Ocean and *Symphurus ocellatus* from off East Africa. *Symphurus bathyspilus* differs from *S. sayademalensis* in having a uniformly bright reddish-brown ocular surface sometimes with faint incomplete cross-bands compared with that of *S. sayademalensis*, which consists of a light-brown background with a dense pattern of obvious freckling.

Symphurus bathyspilus is easily distinguished from *S. ocellatus* in lacking the large black spots on posterior regions of the dorsal and anal fins charac-

teristic of that species, and the meristic features of *S. bathyspilus* also overlap only the high end of counts for *S. ocellatus* (97–103 dorsal-fin rays, 85–89 anal-fin rays and 54–56 total vertebrae in *S. ocellatus*). Furthermore, *S. ocellatus* has a different blind-side pigmentation pattern featuring a uniformly whitish or yellowish background coloration without any red speckles.

Symphurus bathyspilus is also similar in some features (fin-ray and scale counts) to *S. woodmasoni* from the Bay of Bengal and Andaman Sea. However, based on information obtained from a radiograph of the specimen of *S. woodmasoni* we examined, *S. bathyspilus* differs from *S. woodmasoni* in several important meristic features including ID pattern (1-2-2-2-2 vs 1-2-2-1-2 in *S. woodmasoni*), in having nine (vs 10) abdominal vertebrae and in having 50–54 total vertebrae (vs 55 in *S. woodmasoni*). Other distinctive differences between these species occur also in their ocular-side background coloration. In *S. bathyspilus*, the ocular surface is reddish-brown with occasional faint, incomplete cross-bands (but without longitudinal dark lines along pterygiophore regions of the dorsal and anal fins), whereas in *S. woodmasoni*, the ocular side is uniformly dark bluish-gray, without cross-bands, and with longitudinal dark black lines along pterygiophore regions of the dorsal and anal fins (Alcock, 1889). The blind side of *S. bathyspilus* is yellowish-whitish to straw-colored but distinctively much more lightly pigmented than its ocular side, with areas on and around the anus and dorsal, anal, pelvic, and caudal fins overall reddish and covered with distinct reddish-brown speckles. In contrast, in *S. woodmasoni* the blind side is as uniformly darkly pigmented as is its ocular side and there is no speckling apparent. Other differences are that the dorsal, anal, and pelvic fins of *S. bathyspilus* are covered with reddish-brown speckles compared with the uniformly black fins of *S. woodmasoni*, and the caudal fin of *S. bathyspilus* is lightly pigmented or colorless in many specimens, whereas in *S. woodmasoni*, the caudal fin is gray. The two species also differ in the pigmentation of the outer surface of the ocular-side opercle, which is yellowish with small reddish-brown speckles in *S. bathyspilus* compared with a black opercle in *S. woodmasoni*. In *S. bathyspilus*, the snout is pointed, whereas the snout of *S. woodmasoni* is blunt and square (Alcock 1889; this study). Available information on depths of capture also indicates that they occur at different depths. *Symphurus bathyspilus* occurs between 248 and 500 m, whereas captures of *S. woodmasoni* (Alcock, 1889, 1892) are much deeper (869–896 m).

Specimens examined (35 specimens).—Philippines: USNM 113184, (94.7 mm SL), Mindoro Is., Bal-

anja Pt., 12°25'35"N, 121°31'35"E, 431 m, 3 June 1908. USNM 138058, (91.3 mm SL), between Leyte and Cebu Is., Capitancillo Is. Light, 11°11'45"N, 124°15'45"E, 342 m, 16 March 1909. USNM 138062, 7 (70.4–94.0 mm SL), Capitancillo Is. Light, 11°10'N, 124°17'15"E, 335 m, 16 March 1909. USNM 138034, (83.3 mm SL), Leyte, Dupon Bay, Ponson Is. (N), 10°50'N, 124°26'18"E, 350 m, 17 March 1909. USNM 138035, 2 (75.9–84.7 mm SL), Leyte, Dupon Bay, 10°49'20"N, 124°24'23"E, 482 m, 17 March 1909. USNM 138036, (86.4 mm SL), Capitancillo Is. Light, 10°38'N, 124°13'08"E, 348 m, 18 March 1909. USNM 138039, (115.6 mm SL), between Cebu and Bohol Is., Lais Pt. Light, 10°8'50"N, 123°52'30"E, 293 m, 25 March 1909. USNM 138048, (99.0 mm SL), between Negros and Siquijor Is., 9°11'N, 123°23'E, 467 m, 19 August 1909. USNM 138047, (101.3 mm SL), between Negros and Siquijor Is., 9°8'15"N, 123°23'20"E, 471 m, 19 August 1909. USNM 138059, 13 (82.9–100.9 mm SL), Mindanao Is., Macabalan Pt. Light, 8°37'37"N, 124°35'E, 394 m, 4 August 1909. USNM 163656, (100.9 mm SL), Mindanao Is., Camp Overton Light, Iligan Bay, 8°17'24"N, 124°11'42"E, 497 m, 5 August 1909. USNM 138049, 2 (102.3–120.5 mm SL), Gulf of Davao: Dumalag Island, 7°02'N, 125°38'45"E, 248 m, 18 May 1908. Indonesia: USNM 138051, (65.7 mm SL), Molucca Is., between Gillolo and Makyan Is., 0°16'30"N, 127°30'E, 500 m, 29 November 1909. ZMA 100.252, (67.4 mm SL), Banda Sea, 5°54'55"S, 120°19'02"E, 462 m, 26 September 1899. Unspecified location: USNM 138056, (85.9 mm SL), *Albatross Expedition*.

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