# THE SCORPIONFISH SUBFAMILY SETARCHINAE, INCLUDING THE GENUS *ECTREPOSEBASTES*[1]

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ABSTRACT

The scorpionfish subfamily Setarchinae is revised on a worldwide basis. The subfamily is redefined and three genera and four species are recognized. *Lioscorpius longiceps* Günther is treated as a senior synonym of *Macroscorpius pallidus* Fowler after designation of a lectotype of the former. The genus *Ectreposebastes* Garman is referred to the subfamily, and *E. imus* Garman is reported for the first time from the Atlantic Ocean. Two species of *Setarches* are recognized, *S. longimanus* (Alcock) from the western Pacific and Indian oceans and *S. guentheri* Johnson from the Atlantic, Indian, and western Pacific oceans. Descriptions and a key are included.

## INTRODUCTION

The scorpionfishes referable to the subfamily Setarchinae are few, but the systematic status of the 12 nominal species is poorly understood and has been complicated by erroneous and confounded descriptions. We recognize three genera and four species: *Lioscorpius longiceps* Günther, 1880 (replacing *Macroscorpius pallidus* Fowler, 1938) from the western Pacific; *Ectreposebastes imus* Garman, 1899, from the eastern Pacific and the Atlantic; *Setarches longimanus* (Alcock, 1894) from the western Pacific and Indian oceans; and *Setarches guentheri* Johnson, 1862, from the western Pacific, Indian, and Atlantic oceans. The affinities of the monotypic genus *Ectreposebastes* have not previously been reported; we refer it to the subfamily Setarchinae. *Scorpaenella cypho* Fowler, 1938, is also referred to this subfamily as a junior synonym of *Setarches longimanus*. The subfamily Setarchinae, established by Matsubara (1943), is redefined.

Fishes of this subfamily live offshore at depths of about 180-820 m. Stomach contents of two species suggest that they feed above the bottom, although all specimens except some of *Ectreposebastes imus* have been

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taken in large bottom trawls. Adults of *E. imus* have been collected in midwater trawls fished at 275-750 m over bottom depths of 915-2400 m.

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## Methods

Terminology of bones and internal structures follows Matsubara (1943) and that of head spines follows Ginsburg (1953: 5-9). Measurements were taken with dial calipers as described by Eschmeyer (1965: 86-88). Measurements originating at the anterior end of the snout were taken from the most anterior end of the left premaxillary because of the presence of a variable notch at the junction of the premaxillaries. Pectoral-fin length was measured from the base of the upper ray to the tip of the fin. Head length was measured to the posterior margin of the opercular flap. Gill-raker counts on scorpaenid fishes are usually presented as total counts, but in the subfamily Setarchinae rudiments on the lower arch are indistinct or coalesced and were not counted. Rudiments on the upper arm are clearly distinguishable from gill rakers and are not included. The gill-raker formula used here represents the number of gill rakers on upper arch plus the number on lower arch equals total gill rakers (*e.g.*, 4 + 9 = 13).

Depositories of specimens are abbreviated as follows: ANSP—Academy of Natural Sciences of Philadelphia; BMNH—British Museum (Natural History), London; CNHM—Chicago Natural History Museum; MCZ—Museum of Comparative Zoology, Harvard University; SIO—Scripps Institution of Oceanography; SU—Division of Systematic Biology, Stanford University; TABL—Bureau of Commercial Fisheries Tropical Atlantic Biological Laboratory, Miami; UMML—University of Miami Marine Laboratory; USNM—United States National Museum, Washington, D. C.; and ZMC—Zoologiske Museum, Copenhagen.

## Subfamily Setarchinae Matsubara

*Diagnosis.*—Lateral line a continuous trough covered by thin membranous scales. Scales small and cycloid. Cranium thin and cavernous, bones weakly ossified. Second suborbital bone uniformly broad or gradually becoming wider posteriorly, never T-shaped, and without spines in adults. Third and fourth suborbital bones absent. No fleshy appendages on head or body. Small slit present behind fourth gill arch. Vertebrae 24. Pyloric caeca 4 or 5.

*Description.*—Most spines not well developed, usually less prominent in large specimens. Parietal ridge low, ending in a spine or spinules posteriorly; nasal spine small but sharp; preocular, supraocular, and postocular spines present in small specimens, only preocular spine remaining as well defined spine in larger specimens. Other spines present on each side include the preorbital (3, first often small), preopercular (4 or 5) (Fig. 1), upper and lower post-temporal, supracleithral, cleithral, and pterotic. Suborbital bones (Fig. 2) usually lacking spinous points, small points sometimes present in small specimens. Swimbladder usually

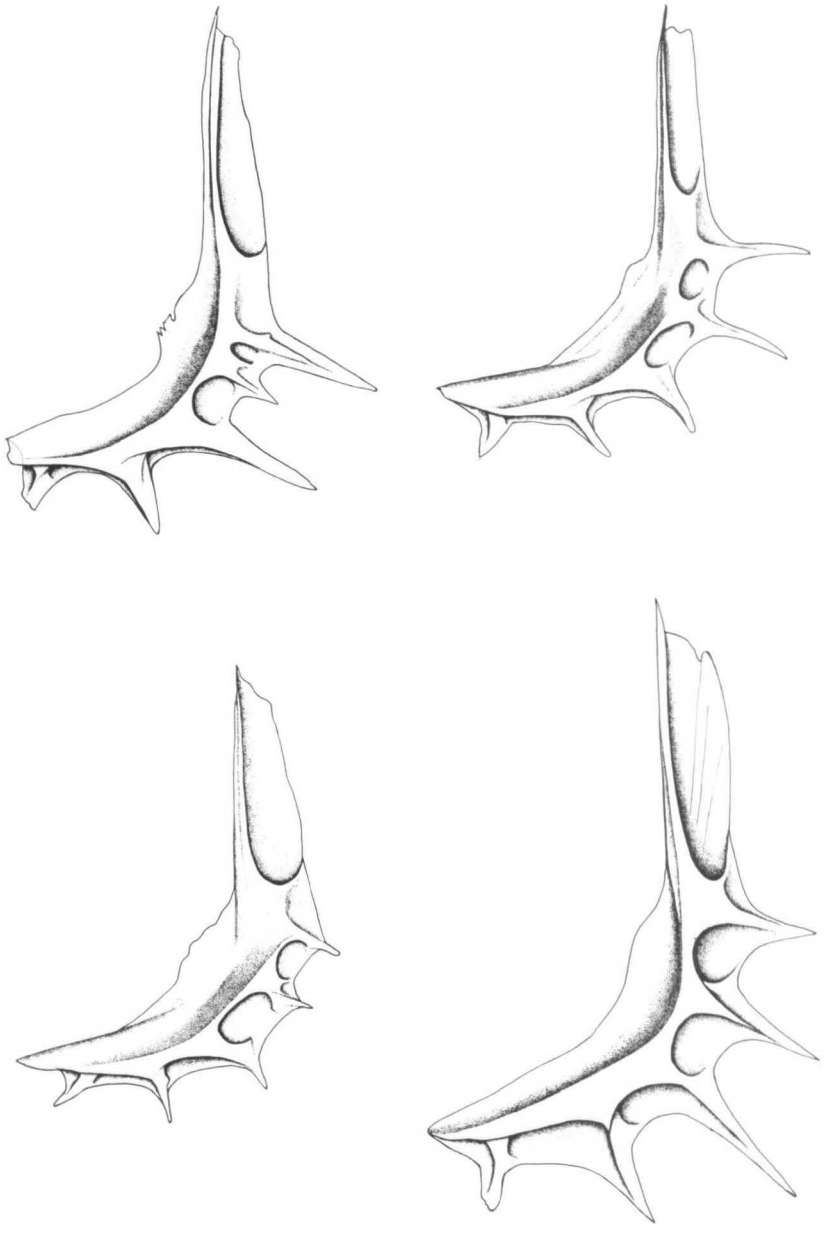

FIGURE 1. Preopercular bones of species of Setarchinae. Top, left to right: *Setarches longimanus, S. guentheri.* Bottom, left to right: *Lioscorpius longiceps, Ectreposebastes imus.*

present, greatly reduced or absent in *Ectreposebastes*. Stomach well pigmented, intestine and pyloric caeca sometimes pigmented. Dorsal spines XI-XIII, usually XII, the last spine at the leading edge of the second dorsal fin, rays 9-11 (last split to base); anal spines II-III, rays 4-6 (last split); pectoral rays 18-25, rays 2-3 to 15-18 branched in adults; pelvic rays I, 5; branchiostegal rays 7; developed gill rakers 2-5 + 8-11 = 10-15. Teeth present on premaxillary, dentary, vomer, pharyngeal, and palatine bones. Difference between developed gill rakers and rudiments distinguishable. Second and third lobes of preorbital bone ending in a moderate spine, first lobe with spine variable. Upper jaw length 21-28 per cent of standard length, head length 41-52 per cent.

Matsubara (1943: 359-362) gave a detailed discussion of the internal anatomy of the two species of *Setarches*. One section of his description must be changed, however. Matsubara (p. 360) stated, "It is very remarkable that in the present subfamily the basisphenoid is completely absent. . . ." He (p. 161) used the supposed absence of a basisphenoid and the fact that the second and third actinosts slightly intervene between the hypercoracoid and the hypocoracoid to conclude that ". . . the cottids have sprung off from a scorpaenid not very unlike the *Setarches*-ancestor." We found a small basisphenoid, connected only by cartilage, in cleared and stained specimens of all four species referred to the subfamily. Therefore Matsubara's conclusion is untenable. The Setarchinae is a highly specialized group in possessing such characters as the modified lateral line, reduced ossification, and reduction in head spines, and it is very unlikely that another group evolved from it.

*Nomenclatural Remarks.*—The subfamily Setarchinae was proposed by Matsubara in his classic monograph on the scorpaenoid fishes of Japan (1943); the subfamily name is based on the oldest and best known genus in the group, *Setarches* Johnson, 1862. Smith (1957a, b) has followed Matsubara. We have uncovered an earlier family-group name, Scorpaenellinae Fowler 1938. The complete description of his subfamily is given in his key to the genera of Philippine scorpaenids (1938a: 50-51) of which the following is the terminal couplet: "Scorpaenellinae, new subfamily. Dorsal spines 12, fin undivided; pectoral moderate, large, rays all simple, united; armature of head well developed . . . *Scorpaenella.*" Characters such as "pectoral rays simple" and "armature of head well developed" are juvenile characters. Fowler based his new genus *Scorpaenella* on the species *S. cypho* which he described as new from one small specimen (20 mm SL). Fowler's species is a junior synonym of *Setarches longimanus* (Alcock). We have found no other specimens identified as *Scorpaenella cypho* and no subsequent use of his subfamily name. Because of the small size and relative unimportance of the subfamily, we do not feel that it is necessary, at the present time, to request

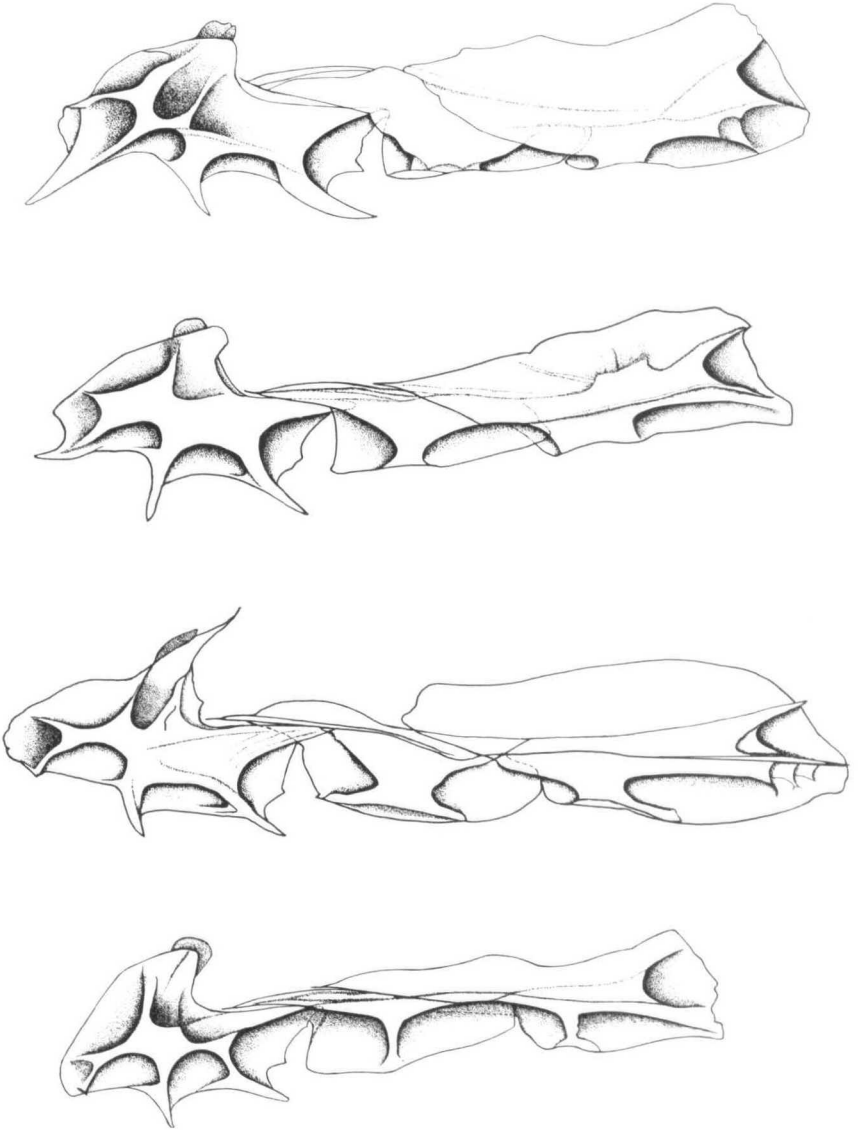

FIGURE 2. Suborbital bones of species of Setarchinae. From top to bottom: *Setarches longimanus, S. guentheri, Lioscorpius longiceps, Ectreposebastes imus.*

the International Commission on Zoological Nomenclature to use its plenary powers to suppress Scorpaenellinae Fowler in favor of Setarchinae Matsubara. We feel that Fowler's family-group name possibly could be rejected on the basis of Article 13(a)(i) of the International Code of Zoological Nomenclature, and could be rejected under the proposal now under consideration (Bulletin of Zoological Nomenclature, 1964), "Well-known and commonly used family-group names should prevail irrespective of . . . priority of group name. . . ."

KEY TO THE SPECIES OF SETARCHINAE

1. Anal spines II; body slender, greatest depth less than 28 per cent standard length; two or three dorsal spines before last spine very small, sometimes covered with scales (Fig. 3) *Lioscorpius longiceps* (p. 365)
1. Anal spines III; greatest body depth usually greater than 30 per cent standard length; two or three dorsal spines before last spine small, but at least one-fifth length of longest spine ..... 2
2. Anterior preorbital spine much shorter than posterior two (Fig. 1); top of head with scales; pectoral rays 18-20; anal rays usually III, 6; orbit diameter contained about 2 times in interorbital; intestine and pyloric caeca pale; swimbladder rudimentary or absent ..... *Ectreposebastes imus* (p. 367)
2. Anterior preorbital spine as long as posterior two (Fig. 1); top of head scaleless; pectoral rays 20-25; anal rays III, 5; orbit diameter subequal to interorbital; intestine and pyloric caeca black or gray; swimbladder well developed ..... *Setarches* ..... 3
3. Second preopercular spine reduced or absent, much shorter than first or third (Fig. 2); interorbital width 9-12 per cent standard length ..... *Setarches longimanus* (p. 356)
3. Second preopercular spine subequal to or longer than first and third (Fig. 2); interorbital width 7-9 per cent standard length *Setarches guentheri* (p. 357)

Genus *Setarches* Johnson

*Setarches* Johnson, 1862: 177 (type species *Setarches güntheri* Johnson, 1862, by monotypy).

*Bathysebastes* Döderlein *in* Steindachner & Döderlein, 1884: 207 (type species *Bathysebastes albescens* Döderlein *in* Steindachner & Döderlein, 1884, by monotypy).

*Lythrichthys* Jordan & Starks, 1904a: 140 (type species *Lythrichthys eulabes* Jordan & Starks, 1904, by monotypy).

*Scorpaenella* Fowler, 1938a: 83-84 (type species *Scorpaenella cypho* Fowler, 1938, by original designation and monotypy).

*Diagnosis.*—Dorsal fin with XII (XI-XIII) spines and 9 or 10 (9-11) soft rays, fin deeply notched. Anal rays III, 5 (4-6), juveniles with only

2 anal spines. Pectoral rays 20-25. Preorbital bone with three moderate spines. Entire alimentary canal, including buccal cavity, stomach, pyloric caeca, and intestine black in life or gray-black in preservative. Swimbladder well developed. Greatest body depth 30-40 per cent of standard length.

*Description.*—The two species of *Setarches, S. guentheri* and *S. longimanus,* are very similar morphologically and in coloration of adults. Both species show the following changes with growth: larger specimens tend to have a proportionally less deep body, shorter head, shorter pectoral fin, and shorter spines in the dorsal fin. The internal features agree except that the extrinsic muscle band of the bladder is straight in *S. longimanus* and curved outward in *S. fidjiensis* [= *S. guentheri*] (Matsubara, 1943: 380).

*Setarches longimanus* (Alcock)

*Lioscorpius longiceps,* Günther, 1880: 52, Pl. 17, Fig. c (Philippine Is., CHALLENGER sta. 204; not of Günther, 1880: 40; see Discussion of Synonymy).—Wood-Mason & Alcock, 1891: 23 (not of Günther, 1880: 40; Andaman Sea, INVESTIGATOR sta. 115, 188-220 fms).

*Lioscorpius longiceps,* var. *longimanus* Alcock, 1894: Pl. 10, Fig. 3 (original description by reference to Wood-Mason & Alcock, 1891: 23; figure shows reduced preopercular spine).

*Lythrichthys eulabes* Jordan & Starks, 1904a: 140-141, Fig. 11 (original description; type locality off Ose Point, Suruga Bay, 60-70 fms, ALBATROSS sta. 3708).—1904b: 588, Fig. (compiled from type description; depth of type locality changed to 65-125 fms).

*Scorpaenella cypho* Fowler, 1938a: 84-85, Fig. 37 (original description; type locality March Is., Molucca Passage, 417 fms; juvenile; counts of pectoral and dorsal rays in error).—Herre, 1952: 443-444 (compiled from Fowler).—de Beaufort *in* Weber & de Beaufort, 1962: 63-64, Fig. 14 (description and figure from Fowler).

*Setarches longimanus,* Matsubara, 1943: 372-385, Figs. 129-135 (synonymy; recognized variety *longimanus* of Alcock as valid species; good description; figures showing variation; 29 specimens from Japan).—Kamohara, 1958: 56 and 1964: 74 (Suruga Bay to Kochi, Japan).

*Setarches güntheri longiceps,* de Beaufort *in* Weber & de Beaufort, 1962: 36-37, Fig. 7 (synonymy in part; description mostly based on *S. guentheri*).

*Discussion of Synonymy.*—Matsubara (1943: 372) was the first to recognize Alcock's *Lioscorpius longiceps* variety *longimanus* as a valid species. He included with question *Lioscorpius longiceps* Günther and on page 380 stated that *S. longimanus* agreed with the figure given by Günther but not with the description. Earlier authors (*e.g.,* Alcock, 1899: 28) also recognized this discrepancy. The specimen figured is *Setarches longimanus.* The specimen mentioned with the description given by Günther is designated lectotype of *Lioscorpius longiceps* (see Discussion of Synonymy for *Lioscorpius longiceps*).

*Material Examined.*—PHILIPPINE ISLANDS: BMNH 1879.5.14.193 (1, 72) CHALLENGER sta. 204, 115 fms.—USNM 136359-68, 136443-54,

135944-45 (40, 30-162) a combined lot labeled *S. longiceps*, ALBATROSS, Philippines; all individually tagged; one specimen each of *Scorpaena* sp., *Setarches guentheri,* and *Lioscorpius longiceps* removed; representative series of 24 specimens 30-162 mm SL counted and measured.

INDONESIA: USNM 98899 (1, 20) holotype of *Scorpaenella cypho* Fowler, 0°37'N, 127°15'E, 417 fms, ALBATROSS sta. D. 5618.

INDIAN OCEAN: USNM 189018 (5, 96-118), Andaman Sea, 10°39'N, 96°35'E, 384 m, ANTON BRUUN 23.—USNM 189017 (237, 46-109) not measured, and UMML 17374 (34, 48-82), Andaman Sea, 10°39'N, 97°06'E, 293 m, ANTON BRUUN 22a.

*Diagnosis.*—Second preopercular spine much shorter than first or third, or absent. Pectoral rays 21-23. Interorbital width greater than in *S. guentheri,* 8-12 per cent standard length versus 7-9 per cent.

*Description.*—Measurements and counts are summarized in Tables 1-8. No information is available on color in life, but it is presumably reddish, speckled with black. Color in preservative is specks of black or brown on a pale background. The specks in smaller specimens are more widely spaced, yielding a more pallid appearance. Color pattern and variation are shown by Matsubara (1943: Figs. 130-132).

*Juveniles.*—The smallest specimen available is the type of *Scorpaenella cypho* (20 mm SL). Some spines on the head are better developed at this size than in adults. The supraocular spine is well developed; the second preopercular spine is longer than in larger specimens. The parietal ridge is low, serrated on upper edge, and ending in two small points posteriorly (in larger specimens the parietal ridge is smooth and ends in one broad point). At 20 mm the first element in the second dorsal fin is still a soft ray; it changes to a spine at about 38 mm.

*Distribution.*—*Setarches longimanus* is known from a few localities in the western Pacific and Indian oceans. It has been reported from off the southeastern coast of Japan, the Philippine Islands, and the Andaman Sea. A wider distribution in the Indo-Pacific is suspected. Depths of capture of 23 ALBATROSS collections made in the Philippines vary from about 180 to 550 m (mean 362 m), plus one specimen from 704 m; the ANTON BRUUN took specimens at 293 and 384 m.

### *Setarches guentheri* Johnson

*Setarches güntheri* Johnson, 1862: 177-179 (original description; type locality Madeira).—Alcock, 1899: 28-29 (included *Lioscorpius longiceps* Günther on basis of figure; included *S. remiger;* specimens from Andaman Sea in 185 and 188-220 fms, Bay of Bengal off Tricomali in 320-296 fms).—Brauer, 1908a: 294 (VALDIVIA stations 208 and 254, northwest coast of Sumatra and east coast of Africa).—Brauer, 1908b: 156, Pl. 33,

Fig. 8 (structure of retina).—Weber, 1913: 491-493 (synonymy; specimens from SIBOGA stations 12, 74, 139, 251, 262, and 316).—Smith, 1934: 97-98, Pl. 6C (included *S. parmatus;* Natal).—Fowler, 1936: 929-930 (compiled).—Maul, 1948: 156 (Madeira).—Noronha & Sarmento, 1948: 123 (Madeira; common name "requeme de natura").—Cadenat, 1950: 321 (Congo).—Herre, 1952: 441 (compiled).—Herre, 1953: 573 (compiled).—Kuroda, 1952: 214-215 (color description).—Smith, 1957b: 85-86, Fig. 9 (included *S. marleyi;* specimens from points between St. Helena Bay, Cape (32°30'S, 17°30'E) and north of Durban at about 29°S).—Boutière, 1958: 12, et seq., Pl. 4 (coast of Morocco; life history notes).—Postel, 1959: 166 (listed).—Postel, 1960: 259 (listed as benthic species found between 200 and 250 m).

*Setarches fidjiensis* Günther, 1878: 179-180 (original description; type locality off Matuku, Fiji Islands in 215 fms).—Günther, 1887: 19 (wrongly lists as new species; description from Günther, 1878; footnote indicates type destroyed by artist).—Fowler, 1928: 292 (compiled).—Matsubara, 1943: 363-372, Figs. 126-128 (synonymy; good description and figures; compared with *S. marleyi* and *S. guentheri; S. parmatus* included in synonymy).—Kamohara, 1958: 56 and 1964: 74 (Tokyo to Kochi).

*Setarches parmatus* Goode, 1881: 480-481 (original description; type locality FISH HAWK sta. 876, 39°57'N, 70°56'W in 178 fms).—Goode & Bean, 1883: 213 (two specimens from BLAKE station 327 off North Carolina in 178 fms).—Jordan & Gilbert, 1882: 682 (compiled).—Jordan, 1885: 897 (listed).—Goode & Bean, 1896: 264-265, Fig. 249 (description; some records compiled; additional specimens from off Barbados in 209 fms, and off the Florida Panhandle).—Jordan & Evermann, 1898: 1860-1861 (compiled).—Jordan, Evermann, & Clark, 1930: 372 (listed).—Howell Rivero, 1936: 63 (Cuba).—Ginsburg, 1953: 97-100 (description; 42 specimens from western Atlantic at 98-280 fms).—Cervigón, 1963: 128 (Venezuela).

*Bathysebastes albescens* Döderlein *in* Steindachner & Döderlein, 1884: 207-208 (original description; type locality off Tokyo, Japan).—Günther, 1887: 20 (mostly compiled; 1 specimen from Sea of Japan).

*Setarches albescens,* Steindachner & Döderlein, 1887: 295, Pl. 1 (*Bathysebastes* placed in synonymy of *Setarches*).—Jordan & Snyder, 1901: 99 (listed).—Jordan & Starks, 1904a: 138-139 (brief synonymy; description; one specimen from ALBATROSS sta. 3729, off Omai Point, Totomi, Japan).—Jordan & Starks, 1904b: 588 (compiled).—Shmidt, 1931: 108 (one specimen from Tokyo fish market; color description).

*Setarches guentheri,* Vaillant, 1888: 373-375 (description; Cape Verde Islands).—Norman, 1935: 33 (Atlantic).—Poll, 1959: 191-194, Fig. 69 (good description; stations 11, 16, 53, 154, and 203, off Angola and the Congo in 220-430 m).—Cadenat, 1961: 242 (listed as occurring in Senegal and Ghana).

*Scorpaena remigera* Gilbert & Cramer, 1897: 418-419, Pl. 40 (original description; type locality Hawaii, ALBATROSS sta. 3476, 298 fms; USNM 47726).

*Setarches remiger,* Gilbert, 1905: 634 (corrected original description; additional specimens from 14 more ALBATROSS stations around the Hawaiian Islands).—Fowler, 1928: 291-292 (compiled).—Fowler, 1938b: 290 (listed).

*Setarches marleyi* Fowler, 1935: 398, Figs. 28-29 (original description; type locality Natal; ANSP 63797).—Norman, 1939: 93 (Zanzibar; Murray Exp. sta. 115 and 122; suggestion of one Indo-Pacific species of *Setarches—S. longiceps; S. parmatus* apparently a synonym of *S. guentheri*).

*Setarches longiceps,* Smith, 1949: 370 (figure 1036; description), (also in 1953 and 1961 editions).

*Setarches güntheri longiceps,* de Beaufort *in* Weber & de Beaufort, 1962: 36-37, not Fig. 7 (synonymy in part; description of *S. guentheri;* figure from Günther, 1880, is *S. longimanus*).

*Discussion of Synonymy.*—Various authors have suggested previously that only one species occurred in the Indian and Atlantic oceans, in the Pacific and Atlantic, or from the Pacific to the Atlantic. De Beaufort (1962) treated all *Setarches* from the Pacific and Indian oceans as a subspecies of *S. guentheri* on Norman's (1939) suggestion that all the Indo-Pacific forms were conspecific. Matsubara (1943) included the western Atlantic species *S. parmatus* with *S. fidjiensis* in the Pacific but separated *S. guentheri* from *S. fidjiensis.* The characters used by Matsubara to distinguish *S. guentheri* from *S. fidjiensis* are related to the size of specimens, with the exception of the two pyloric caeca reported in the original description of *S. guentheri* (Johnson, 1862: 179). Dr. P. H. Greenwood has kindly reexamined the type and has found it to have four pyloric caeca like all our other specimens.

The species does round the tip of South Africa, and no permanent barriers exist between the populations. Therefore, despite geographic variation, we recognize only one species with a distribution from Hawaii to the western Atlantic Ocean.

*Material Examined.*—HAWAII: USNM 47726 (1, 83) holotype, and USNM 75828 (1, 63) and SU 4917 (1, 64) paratypes of *Scorpaena remigera,* ALBATROSS 3476.—USNM 125515 (4, 107-129).—USNM 55251 (8, 52-120).—CNHM 55993 (1, 120).—SU 8572 (3, 74-123).

PHILIPPINES: USNM 136360 (1, 96).

JAPAN: USNM 50910 (1, 36) holotype of *Lythrichthys eulabes,* Suruga Bay.—SU 7177 (1, 177) Okinose.

INDIAN OCEAN: ANSP 63797 (1, 191) holotype of *Setarches marleyi,* Natal.—USNM 109508 (1, 203) Zanzibar, John Murray Expedition.

EASTERN ATLANTIC: BMNH 1867.4.22.36 (1, 180) holotype of *Setarches güntheri,* Madeira.—BMNH 1936.3.25.1 (1, 180) Madeira.—UMML 15690 (4, 47-80) 4°56'N, 5°01'W, 270-180 fms, PILLSBURY 51.—UMML 15603 (24, 45-75) 4°40'N, 9°20'W, 200-170 fms, PILLSBURY 73.—USNM 198214 (2, 50-74) 4°25'N, 8°29'30"W, 400 m, GTS I, trans. 18, sta. 8, BBC 844.—USNM 198213 (4, 41-45) 4°36'N, 9°15'W, 400 m, GTS I, trans. 17, sta. 8, BBC 851.—USNM 198212 (14, 45-82) 5°17'N, 9°55'W, 400 m, GTS I, trans. 16, sta. 8, BBC

TABLE 1
NUMBER OF DORSAL RAYS IN SPECIES OF SETARCHINAE

| Species | Spines | | | Soft rays | | |
|---|---|---|---|---|---|---|
| | 11 | 12 | 13 | 9 | 10 | 11 |
| *Lioscorpius longiceps* | – | 27 | – | 1 | 26 | – |
| *Ectreposebastes imus* | – | 36 | – | 5 | 32 | – |
| *Setarches longimanus* | 1 | 60 | 1 | 3 | 56 | 3 |
| *Setarches guentheri* | | | | | | |
| Hawaii | – | 22 | – | 1 | 21 | – |
| Japan[1] | 1 | 145 | – | 8 | 137 | 1 |
| Philippines | – | 1 | – | – | 1 | – |
| Zanzibar | – | 1 | – | – | 1 | – |
| Eastern Atlantic | 3 | 63 | 3 | 25 | 48 | – |
| Western Atlantic | – | 66 | – | 19 | 47 | – |

[1]Calculated from Matsubara, 1943: 369.

TABLE 2
NUMBER OF ANAL RAYS IN SPECIES OF SETARCHINAE

| Species | Spines | | Soft rays | | | |
|---|---|---|---|---|---|---|
| | 2 | 3 | 4 | 5 | 6 | 7 |
| *Lioscorpius longiceps* | 26 | – | – | – | 26 | – |
| *Ectreposebastes imus* | – | 36 | – | 1 | 35 | 1 |
| *Setarches longimanus* | – | 25 | 3 | 60 | 1 | – |
| *Setarches guentheri* | – | 125 | 4 | 154 | 95 | – |

TABLE 3
NUMBER OF LEFT PECTORAL RAYS IN SPECIES OF SETARCHINAE

| | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 |
|---|---|---|---|---|---|---|---|---|---|
| *Lioscorpius longiceps* | – | – | – | – | – | – | 4 | 16 | 7 |
| *Ectreposebastes imus* | – | 12 | 19 | 5 | – | – | – | – | – |
| *Setarches longimanus* | – | – | – | – | 11 | 48 | 4 | – | – |
| *Setarches guentheri* | | | | | | | | | |
| Hawaii | – | – | – | 3 | 13 | 1 | – | – | – |
| Japan[1] | – | – | – | x | xx | xx | x | – | – |
| Philippines | – | – | – | – | – | 1 | – | – | – |
| Zanzibar | – | – | – | – | – | 1 | – | – | – |
| Eastern Atlantic | – | – | – | – | 5 | 46 | 16 | 1 | – |
| Western Atlantic | – | – | – | – | – | 8 | 46 | 10 | 1 |

[1]Matsubara (1943: 364) gives range of 20-24, mode of 22, and mean of 21.62 for 146 Japanese specimens.

857.—USNM 198211 (11, 42-83) 6°08′N, 10°57′W, 350-400 m, GTS I, trans. 14, sta. 8, BBC 868.—USNM 198210 (14, 52-97) 6°31′N, 11°29′W, 350-500 m, GTS I, trans. 13, sta. 8, BBC 887.—USNM 199452 (1, 40) 1°56′S, 8°47′E, 300 m, GERONIMO 204.—USNM 199453 (2, 60-85) 2°00′S, 8°46′E, 458-613 m, GERONIMO 206.—USNM 199451 (4, 40-48) 3°02′S, 9°21′E, 300 m, GERONIMO 220.—USNM 199454 (1, 49) 3°31′S, 9°53′E, 400 m, GERONIMO 228.—ANSP 103306 (6, 55-136) 3°32′S, 9°53′E, 400 m, GERONIMO 229.—MCZ 44403 (6, 46-118) 4°03′S, 0°22′E, 300 m, GERONIMO 237.—USNM 199455 (5, 54-143) 4°07′S, 10°23′E, 400 m, GERONIMO 238.—CNHM 73380 (6, 53-129) 4°38′S, 11°02′E, 400 m, GERONIMO 247.—ZMC uncat. (761, 40-156) 2°09′N, 9°27′E, 530-850 m, ATLANTIDE 120 [not measured].

WESTERN ATLANTIC: USNM 28084 (1, about 41) holotype of *Setarches parmatus*, 39°57′N, 70°56′W, 120 fms, FISH HAWK 876.—UMML 11330 (2, 91-105) 25°29′-33′N, 79°54.5′-80°02′W, 180-185 fms, GERDA 77.—UMML 12505 (4, 89-122) 29°12′N, 86°42′W, 225 fms, OREGON 4073.—UMML 13493 (3, 55-75) 24°29′N, 83°29′W, 190 fms, OREGON 4335.—UMML 12508 (5, 53-94) 29°22′N, 86°48′W, 245 fms, OREGON 4072.—UMML 13508 (8, 39-187) 11°46′N, 69°15′W, 240 fms, OREGON 4417.—UMML 14263 (4, 110-189) 11°46′N, 69°16′W, 240 fms, OREGON 4418.—UMML 5038 (3, 77-158) 27°53′N, 79°09′W, 375-415 fms, SILVER BAY 442.—UMML 7314 (1, 123) 11°40′N, 62°40′W, 215 fms, OREGON 2770.—UMML 2254 (3, 39-53) 32°15′N, 78°51′W, 190 fms, COMBAT 300.—UMML 12507 (1, 59) 29°04′N, 88°27′W, 200 fms, OREGON 4043.—UMML 13975 (1, 83) 24°28′N, 83°28′W, 205 fms, OREGON 4354.—UMML 13672 (1, 49) 24°28′N, 83°26′W, 210 fms, OREGON 4368.—UMML 14018 (1, 68) 10°54′N, 67°08′W, 220 fms, OREGON 4453.—UMML 12511 (1, 61) 29°05′N, 88°30′W, 210 fms, OREGON 4331.—UMML 12509 (4, 47-58) 29°11′N, 88°06.5′W, 200 fms, OREGON 3677.—ANSP 101191 (1, 54) 11°34′N, 62°49′W, 160-200 fms, OREGON 2781.—UMML 15365 (1, 109) 11°09.5′N, 72°25′W, 160 fms, OREGON 4858.—SU 50187 (3, 51-61) 1°49′N, 46°48′W, 225 fms, OREGON 2083.—UMML 16195 (11, 47-149) 11°30′N, 60°46′W, 200-240 fms, OREGON 5028.—UMML 17327 (4, 58-84) 29°40′N, 80°12′W, 200 fms, OREGON 5089.—UMML 16268 (5, 57-90) 11°31′N, 60°51′W, 240-250 fms, OREGON 5029.—UMML 17310 (1, 134) 29°45′N, 80°13′W, 188 fms, OREGON 5075.—UMML 17325 (7, 100-154) 29°43′N, 80°11′W, 192 fms, OREGON 5081.—UMML 12384 (2, 98-109) 25°31′N, 79°57′W, 200 fms, GERDA 66.

*Diagnosis.*—Second preopercular spine well developed, subequal or longer than first and third. Pectoral rays 20-25, modally 21 in Hawaii, 22 in

TABLE 4

BODY DEPTH EXPRESSED AS A PERCENTAGE OF STANDARD LENGTH IN SPECIES OF SETARCHINAE[1]

| Species | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Lioscorpius longiceps* | 4 | 3 | 5 | 5 | 2 | 2 | – | 1 | – | – | – | – | – | – | – | – | – |
| *Ectreposebastes imus* | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 4 |
| *Setarches longimanus* | – | – | – | – | – | – | – | – | – | – | 2 | 7 | 5 | 9 | 11 | 8 | 1 |
| *Setarches guentheri* | – | – | – | – | – | – | – | 2 | 3 | 4 | 6 | 14 | 25 | 19 | 19 | 14 | 8 |

| Species | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | N | $\bar{X}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Lioscorpius longiceps* | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 22 | 23.4 |
| *Ectreposebastes imus* | 4 | 2 | 4 | 1 | – | 1 | 3 | 1 | 2 | 1 | 2 | 2 | – | – | 1 | 28 | 42.3 |
| *Setarches longimanus* | 2 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 45 | 34.3 |
| *Setarches guentheri* | 4 | 2 | 2 | – | – | – | – | – | – | – | – | – | – | – | – | 122 | 34.0 |

[1]Relative depth of body tends to decrease in larger specimens.

eastern Atlantic, and 23 in the western Atlantic. Interorbital width less than in *S. longimanus,* 7-9 per cent versus 8-12 per cent standard length.

*Description.*—Measurements and counts are presented in Tables 1-8. In life, specimens are brick red to orange with reddish black specks on the head and body. Smaller specimens are usually reddish gray with black specks. The smallest specimens (about 40 mm) have the dark pigment more concentrated in a patch above the pectoral fin, and below the soft dorsal fin, with less pigment on the caudal peduncle.

*Variation.*—Counts and measurements vary geographically. Specimens from Hawaii average lower in number of pectoral rays (Table 3), but the number of pectoral rays increases to the west; the average is highest in the western Atlantic. Specimens from Hawaii average higher in number of soft dorsal rays (Table 1); this count decreases to the west, but the population in the western Atlantic has a slightly higher mean than that in the eastern Atlantic. The pectoral-fin length is greatest in specimens from Hawaii.

Despite geographic variation, no subspecies are recognized. The populations appear to be more or less continuous, and have a wide north-south distribution. The species occurs at the tip of South Africa.

*Distribution.*—As recognized here, *S. guentheri* occurs from Hawaii west to the western Atlantic. It has also been reported from Fiji, the Andaman Sea, the Bay of Bengal, the Sea of Japan, the southeast coast of Japan, Zanzibar, north of Durban, Natal, the Gulf of Guinea, the Cape Verde Islands, Senegal, Morocco, and Madeira. This species has the widest distribution of any known scorpaenid.

*S. guentheri* is widely distributed in the western Atlantic from 39°57'N, 70°56'W (type of *S. parmatus*) to northern Brazil (OREGON 2082). The Bureau of Commercial Fisheries Exploratory Fishing and Gear Research Base at Pascagoula, Mississippi, presently has 274 records of *Setarches guentheri* from the western Atlantic. We have verified identification of specimens from 69 of these stations and are confident that the majority of the others are accurate.

*Ecology.*—Several authors (*e.g.,* Herre, 1952; Wood-Mason & Alcock, 1891) have reported species of *Setarches* as being benthic or pelagic. We can find no records of the capture of *S. guentheri* by means other than bottom trawls. An analysis of 274 Bureau of Commercial Fisheries records for *S. guentheri* in the western Atlantic Ocean shows a depth range of about 220 to 685 m (mean 390 m) and a bottom temperature range of 42-55°F (5.5°-12.5°C) (mean 49.6°F [9.5°C] for 91 stations). Nearly two-thirds of the 29 records from the Gulf of Guinea are at 400 m. This is partly because the two deepest stations of each transect of the Guinean

TABLE 5

PECTORAL-FIN LENGTH EXPRESSED AS A PERCENTAGE OF STANDARD LENGTH IN *Setarches guentheri*

| Locality | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | N | $\bar{X}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hawaii | – | – | – | – | – | 1 | 3 | 4 | 3 | 3 | 1 | 1 | 1 | – | 17 | 38.9 |
| Eastern Atlantic | 5 | 7 | 13 | 13 | 11 | 4 | 5 | 2 | 4 | – | 1 | 2 | – | 1 | 68 | 34.8 |
| Western Atlantic | 1 | 1 | 11 | 14 | 14 | 11 | 6 | 4 | 3 | – | 1 | – | – | – | 66 | 35.2 |

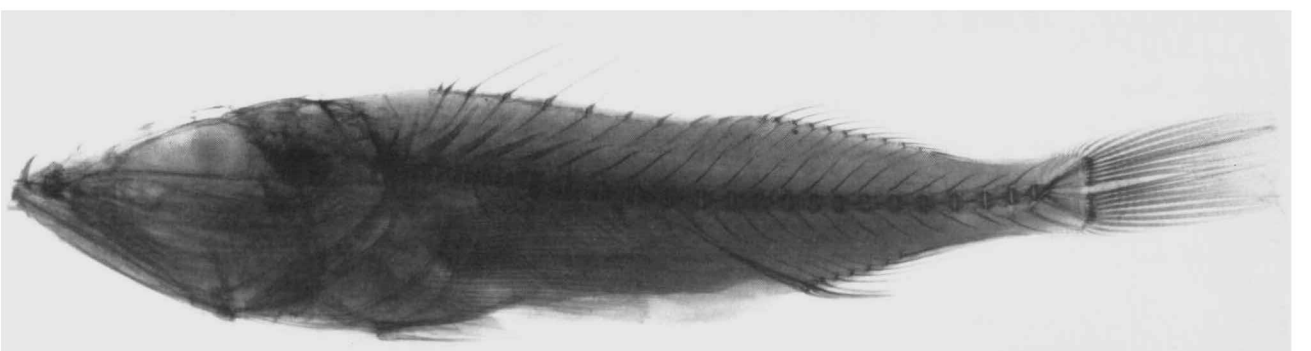

FIGURE 3. Radiograph of holotype of *Macroscorpius pallidus* ( = *Lioscorpius longiceps*). USNM 98890, 130 mm standard length.

Trawling Survey were at 200 m and at 400 or 600 m (Williams, 1964). *S. guentheri* was not collected at the 200 m station. For five stations Poll (1959) gave the abundance of *S. guentheri*: 220-240 m, 2 specimens; 300-310 m, 4; 350-380 m, 7; 290-390 m, 76; and 400-430 m, 115. This tends to confirm that *S. guentheri* prefers a depth of about 400 m. Specimens usually arrive at the surface with the stomach everted, but four from the western Atlantic had partially digested material in the stomach. Two specimens contained parts of crustaceans of the bathypelagic caridean family Oplophoridae, one contained parts of *Oplophorus* sp., and the fourth an amphipod. Therefore, it is suggested that this species feeds in the water column though it lives on or just off the bottom.

### Genus *Lioscorpius* Günther

*Lioscorpius* Günther, 1880: 40-41 (type species *Lioscorpius longiceps* Günther, 1880, by monotypy).

*Macroscorpius* Fowler, 1938a: 75 (type species *Macroscorpius pallidus* Fowler, 1938, by original designation and monotypy).

*Diagnosis.*—Preorbital bone with first spine greatly reduced. A long dorsal projection covers dorsal articulating surface of preorbital. Anal rays II,6. Pectoral rays 23-25. Last 2-3 dorsal spines in first dorsal fin small and frequently buried (Fig. 3). Swimbladder well developed with large gas gland. Body depth less than in other species of Setarchinae, 21-28 per cent standard length. Interorbital region narrow, only 6-7 per cent standard length.

### *Lioscorpius longiceps* Günther

*Lioscorpius longiceps* Günther, 1880: 40-41 (original description; type locality Ki [now Kai] Islands, Arafura Sea, CHALLENGER sta. 192, 129 fms; not p. 52 or Pl. 17, Fig. c, which are referable to *Setarches longimanus*).—Günther, 1887: 20 (listed).—Goode & Bean, 1896: 265 (compiled).—Jordan & Richardson, 1910: 51 (listed).

*Macroscorpius pallidus* Fowler, 1938a: 76-77, Fig. 33 (original description; type locality Point Tagola Light, 8°48′N, 123°31′E, northern Mindanao and vicinity in 200 fms, also series from the Philippines in 162-226 fms).—Matsubara, 1943: 386-388, Fig. 136 (one specimen from Shikoku Is., Japan in 100 fms).—Herre, 1952: 439-440 (description from Fowler & Matsubara).—Herre, 1953: 565 (listed).—Kamohara, 1958: 56 and 1964: 74 (Wakayama Pref. to Kochi, Japan).

*Discussion of Synonymy.*—Two specimens were located in the British Museum (Natural History) bearing the name *Lioscorpius longiceps*. One, BMNH 1879.5.14.199, is of the length and bears the locality data (Ki Islands) given by Günther (1880: 40) for the specimen mentioned with his description of the species. Data in the bottle containing the other specimen, BMNH 1879.5.14.193, match the data given by Günther on page 52 of the same work as "*Lioscorpius longiceps* n. sp. (see p. 40).

TABLE 6
SNOUT LENGTH EXPRESSED AS A PERCENTAGE OF STANDARD LENGTH IN SPECIES OF SETARCHINAE

| Species | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | N | X |
|---|---|---|---|---|---|---|---|---|---|---|
| *Lioscorpius longiceps* | – | – | 1 | 16 | 4 | 1 | – | – | 22 | 13.2 |
| *Ectreposebastes imus* | – | – | – | 5 | 15 | 9 | – | 1 | 30 | 14.2 |
| *Setarches longimanus* | 2 | 11 | 24 | 4 | 3 | 3 | – | – | 47 | 12.1 |
| *Setarches guentheri* | 1 | 22 | 46 | 39 | 7 | – | – | – | 115 | 12.3 |

Station 204, Philippines." The description includes data from both specimens. The dorsal spine count of "8 or 9/11" matches the Ki specimen (the 9th through 11th spines are tiny and covered at least partially with scales; all 12 spines are clearly visible in the figured specimen); anal rays $\frac{\text{"2 or 3"}}{6}$ fit the Ki specimen (II,6) better than the Philippine specimen (III,5); body depth is given as one-fourth standard length in the description, fitting the Ki specimen, and is represented as about one-third in the figure, fitting the Philippine specimen. We select the Ki specimen, BMNH 1879.5.14.199, as lectotype, which makes *Macroscorpius pallidus* Fowler 1938 a junior synonym of *Lioscorpius longiceps* Günther 1880. The figured specimen from the Philippine Islands is referred to *Setarches longimanus*.

*Material Examined.*—BMNH 1879.5.14.199 (1, 85) lectotype of *Lioscorpius longiceps,* Ki [Kai] Islands.—USNM 98890 (1, 130) holotype of *Macroscorpius pallidus,* Mindanao, Philippines.—USNM 113004 (9, 88-114) and 98995 (15, 104-135) paratypes of *M. pallidus,* Philippine Islands.—USNM 98989-94 and 98996-99006 and SU 40201 (3), all paratypes of *M. pallidus,* checked for identification but no counts or measurements taken; all from the Philippines except 98991 from Borneo.—USNM 136449 (1, 63) Philippines, ALBATROSS.

*Description.*—Measurements and counts are presented in Tables 1-8. Matsubara (1943: 387) reported the color in life as pink, with five indefinite large dark blotches on the sides of the body, the first three below the spinous dorsal, one below the soft dorsal, and one on the base of the caudal fin.

*Distribution.*—The species is known from the Philippines, Borneo, Japan, and the Arafura Sea. It is found at depths of about 180 to 410 m.

## Genus *Ectreposebastes* Garman

*Ectreposebastes* Garman, 1899: 53 (type species *Ectreposebastes imus* Garman, 1899, by monotypy).

TABLE 7

INTERORBITAL WIDTH EXPRESSED AS A PERCENTAGE OF STANDARD LENGTH IN SPECIES OF SETARCHINAE

| Species | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | N | $\bar{X}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Lioscorpius longiceps* | 13 | 9 | – | – | – | – | – | – | – | – | 22 | 6.4 |
| *Ectreposebastes imus* | – | – | – | – | 1 | 1 | 5 | 19 | 4 | 1 | 31 | 12.9 |
| *Setarches longimanus* | – | – | 13 | 9 | 10 | 11 | 2 | – | – | – | 45 | 9.6 |
| *Setarches guentheri* | – | 1 | 60 | 65 | – | – | – | – | – | – | 126 | 8.5 |

*Diagnosis.*—Preorbital bone with anterior spine greatly reduced. Anal rays III,6; juveniles with only 2 anal spines. Pectoral rays 18-20. Pyloric caeca 5. Stomach often with some black pigment, but intestine and pyloric caeca unpigmented. Swimbladder absent or rudimentary. Body soft and flabby in life. Body depth averages greater than in other genera of Setarchinae, 37-52 per cent of standard length.

### *Ectreposebastes imus* Garman

*Ectreposebastes imus* Garman, 1899: 53-55, Pls. 8, 9, and 71, Fig. c (original description; type locality Galapagos Islands, 384 fms, ALBATROSS 3403).—Fowler, 1938b: 257 (listed).

*Material Examined.*—EASTERN PACIFIC: MCZ 28766 (3, 113-117, 2 partially dissected) and USNM 153606 (1, 90) syntypes of *Ectreposebastes imus,* off Galapagos Islands, 0°58′30″S, 89°17′W, 384 fms, ALBATROSS 3403.—USNM 135641 (1, 116) and SU 25619 (1, 101) 0°29′S, 89°54′30″W, 392 fms, ALBATROSS 2818.—USNM 169165 (1, 113) 0°37′S, 80°00′W, 401 fms, ALBATROSS 2792.

WESTERN ATLANTIC: USNM 198219 (1, 51) 29°06′N, 88°02′W, 150 fms, over bottom depth of 500 fms, OREGON 3219.—CNHM 66455 (1, 59), and USNM 199467 (1, 60) 16°41′N, 82°26′W, 375-450 fms, OREGON 1940.—USNM 188875 (3, 55-64) 9°02.4′N, 76°31.5′W, 400 fms, OREGON 4902.

EASTERN ATLANTIC: UMML 15691 (1, 171) 4°24′-30′N, 3°00′-06′W, 300 m over bottom depth of 1200-1340 fms, PILLSBURY 39.—UMML 15692 (6, 68-139) 4°20′-30′N, 9°26′-22′W, 350-400 fms, PILLSBURY 74.—UMML uncat. (1, about 160) 2° 45′-49′N, 8°45.9′-42.6′E, 750 m over bottom depth of 965-1015 fms, PILLSBURY 261.—USNM 198215 (4, 56-82) 9°10′N, 15°39′W, 600-610 m, GTS I, trans. 6, sta. 8, BBC 941.—USNM 198216 (5, 69-127), MCZ 44401 (1, 82), CNHM 73379 (1, 82), and SIO 65-430-53A (1, 74), 6°31′N, 11°29′W, 350-500 m, GTS I, trans. 13, sta. 8, BBC 887.—USNM 198217 (5, 72-132) 5°38′N, 10°26′W, 560-640 m, GTS I, trans. 15, sta. 8, BBC 866.—USNM uncat. (1, 121) 4°37.5′N, 9°15′W, 400 m, GTS II, trans. 17, sta. 8.

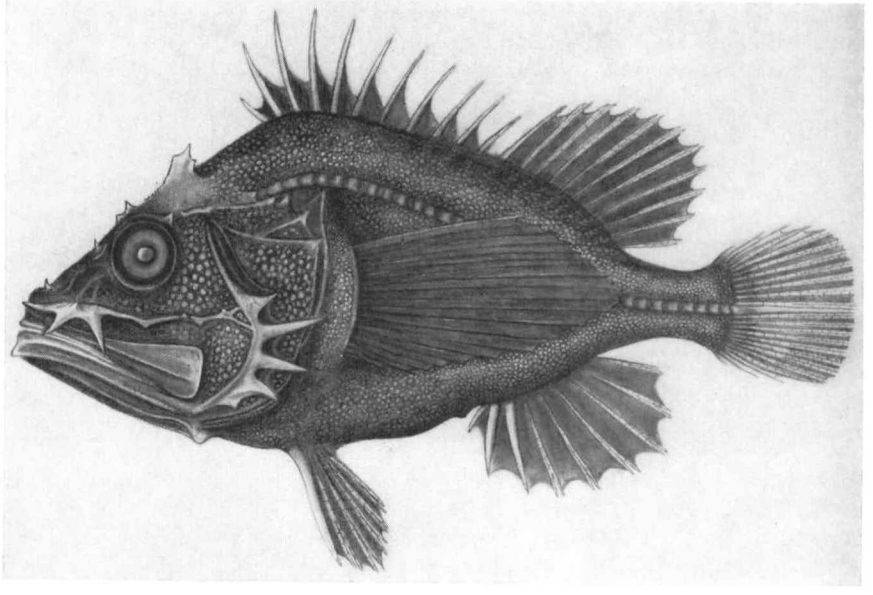

FIGURE 4. *Ectreposebastes imus*. USNM 198215, Gulf of Guinea, Guinean Trawling Survey, 55.5 mm standard length.

The following larval specimens were studied: UMML 18227 (1, 16) south of Puerto Rico, 17°31′-25′N, 66°33′-55′W, 165 m over bottom depth of about 2000 fms, GERDA Carib. 4.—UMML 18228 (1, 15) 3°30′N, 4°51′-52′E, 400 m over about 2000 fms, PILLSBURY 306.

*Description.*—Measurements and counts are presented in Tables 1-8. The measurements show more variation than is present in the other species, but this is not correlated with geography and is probably due to the flabby body and poor ossification. In alcohol the body behind the head shrinks to about half its width in life. The body is black in small specimens (pale where scales are rubbed off) and maroon and black in adults (Fig. 4). The buccal cavity is black with patches of bright orange and red in life; the pharyngeal teeth are red or orange.

*Larvae.*—Two small specimens, 15 and 16 mm standard length, are unpigmented. The smaller specimen in life had the pectoral fin yellow with pink at the distal margin, and the body had slight tinges of pink. The peritoneum was silver. Head spines are better developed than in larger specimens. A pair of long, serrated parietal spines, almost twice the orbit diameter, is present. A small spine is present at the base of each long spine in one specimen. (In larger specimens the base of each long

parietal spine is still present (see Fig. 4).) Of the ocular spines, the supraocular spine is best developed and has a few serrations on its edges. The pectoral fin reaches to the posterior end of the anal fin base; the rays are undivided. There are only 11 dorsal spines at this stage; the one at the beginning of the soft-rayed portion is still in the condition of a soft ray. The third anal element has not yet changed from a soft ray to a spine. The head is about 45 per cent of standard length and the body depth about 50 per cent.

*Distribution.—Ectreposebastes imus* was known from only three ALBATROSS stations in the tropical eastern Pacific at the Galapagos Islands and off the coast of Peru. Specimens in this study extend the range to both sides of the Atlantic Ocean (Fig. 5). *E. imus* is apparently able to survive in midwater.

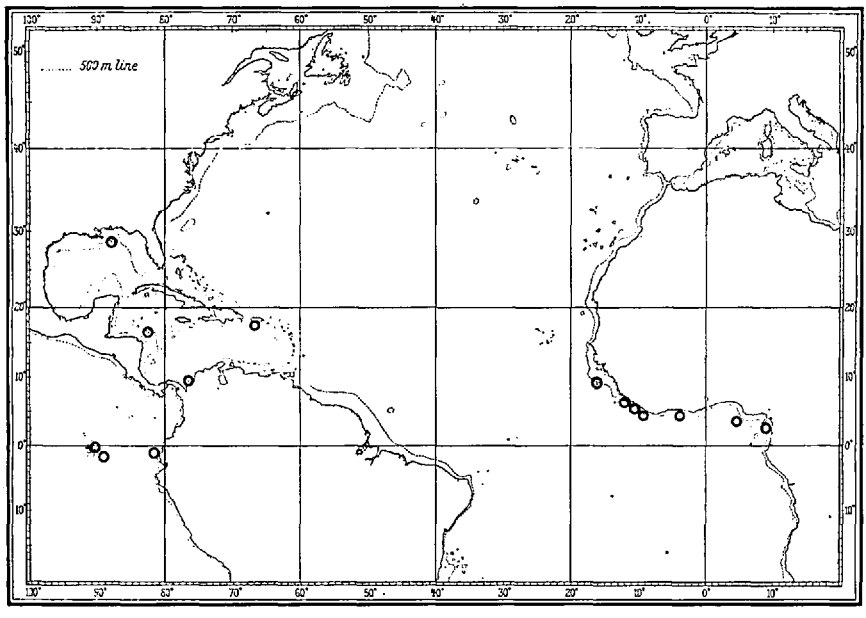


FIGURE 5. Range of *Ectreposebastes imus.*

*Ecology.*—Most specimens of *E. imus* have been taken in large bottom trawls fished at 500 to 800 m. In the Gulf of Guinea during Guinean Trawling Survey I, specimens were collected at two out of four stations at least 500 m deep. A station at 350-500 m produced 8 specimens of *E. imus* and 18 of *Setarches guentheri.* Three adults of *Ectreposebastes* have also been taken in midwater trawls: a specimen 51 mm SL by the

TABLE 8

PREDORSAL DISTANCE EXPRESSED AS A PERCENTAGE OF STANDARD LENGTH IN SPECIES OF SETARCHINAE

| Species | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | N | $\bar{X}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Lioscorpius longiceps* | 2 | 4 | 2 | 6 | 3 | 5 | – | – | – | – | – | – | – | – | 22 | 38.9 |
| *Ectreposebastes imus* | – | – | – | – | – | 1 | 2 | 3 | 4 | 4 | 3 | 4 | 4 | 5 | 30 | 45.8 |
| *Setarches longimanus* | – | 1 | – | 3 | 9 | 12 | 6 | 9 | 3 | 1 | – | – | – | – | 44 | 41.4 |
| *Setarches guentheri* | | | | | | | | | | | | | | | | |
| Hawaii | – | – | – | – | 2 | 3 | 3 | 4 | 5 | 1 | – | – | – | – | 18 | 42.6 |
| Eastern Atlantic | – | 1 | 2 | 4 | 13 | 20 | 13 | 13 | 3 | – | – | – | – | – | 69 | 41.2 |
| Western Atlantic | 3 | 10 | 7 | 14 | 8 | 7 | 9 | 5 | 2 | – | – | – | – | – | 65 | 39.7 |

OREGON (station 3219) in a 60-foot midwater trawl fished at 275 m over a bottom depth of 915 m, and specimens of 171 and 160 mm by the PILLSBURY (stations 39 and 261) in 10-foot Isaacs-Kidd midwater trawls fished at 300 m and 750 m over bottom depths of about 1800 to 2400 m.

Of all scorpionfishes, *E. imus* is structurally the best adapted to life in midwater. The swimbladder is absent or rudimentary. The bones are poorly ossified, and spines are weak and usually broken during capture. The scales are thin and deciduous. The white body musculature is soft and flabby.

It is unlikely that up to eight specimens per bottom tow could be taken from midwater while the trawls were being set or retrieved, but stomach contents suggest that regardless of the position of the fish in relation to the bottom, they do not feed on the bottom. Of the six specimens from PILLSBURY station 74 (bottom tow), three contained identifiable stomach contents; one had parts of crustaceans; a second an amphipod and parts of a midwater shrimp, *Sergestes* sp.; and the third had three specimens of *Sergestes* sp.


## SUMARIO

### SUBFAMILIA DE PECES RASCACIOS, SETARCHINAE, INCLUYENDO EL GÉNERO *Ectreposebastes*

La pequeña subfamilia de peces rascacios Setarchinae es revisada sobre bases mundiales; se reconocen tres géneros y cuatro especies. El género monotípico *Ectreposebastes* es colocado en Setarchinae y *E. imus* Garman, conocido en el Pacífico Oriental, en las Islas Galápagos y la costa del Perú, es reportado en el Atlántico Oriental y Occidental. *Setarches guentheri* Johnson se encuentra en toda la zona circuntropical excepto en el Pacífico Oriental, aunque algunos conteos y medidas varían geográficamente. *Setarches longimanus* Alcock está presente en el Pacífico Occidental y Océano Índico. *Lioscorpius longiceps* Günther (en lugar de *Macroscorpius pallidus* Fowler) es conocido en el Océano Pacífico Occidental. Se incluyen descripciones y claves.

Los peces de esta subfamilia viven lejos de la costa a profundidades alrededor 180-820 m, pero se conoce poco de su ecología. El contenido estomacal de dos especies sugiere que se alimentan sobre el fondo, aunque todos los ejemplares excepto algunos de *Ectreposebastes imus* han sido cogidos en rastreos del fondo. Adultos de *E. imus* han sido recolectados en media agua de 275-750 m sobre fondos de 915-2400 m de profundidad.


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