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A NEW SPECIES OF SHOVEL-NOSE LOBSTER, *SCYLLARUS PLANORBIS*, FROM THE SOUTHWESTERN CARIBBEAN AND NORTHERN SOUTH AMERICA¹

L. B. HOLTHUIS

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ABSTRACT

A new species of *Scyllarus* is described and its differences from the closely related species *Scyllarus chacei* given.

INTRODUCTION

During the cruises made by R/V JOHN ELLIOTT PILLSBURY in the southern Caribbean in 1966 and 1968, a new species of *Scyllarus* was found at numerous stations off the coasts of Honduras, Panama, Colombia, and Venezuela, often occurring in considerable numbers in the catches; the species was taken also at two stations off the Guianas and one off eastern Venezuela just outside the Caribbean island arc. The new species, which so far has not been found in material from the northern and central Caribbean, proves to be closest to *Scyllarus chacei* Holthuis, 1960, a species that occurs throughout the range of the new form. However, the differences between the two species are so constant and distinct that even in the field they can be easily and rapidly distinguished. Although the ranges of the two species overlap, they have only once been found together in the same sample.

The type material of the new species, which consists of no less than 540 specimens, includes several ovigerous females. Some of these, when collected, were kept alive and were taken to the Institute of Marine Sciences of the University of Miami. The eggs of these specimens hatched in the laboratory, and the larvae were reared up to stage VI by Dr. Philip B. Robertson, who in the near future will publish an account of his findings (cf., Robertson, unpublished).

I am deeply grateful to Dr. Gilbert L. Voss and Dr. Frederick M. Bayer for permitting me to take part in the 1966 and 1968 cruises of R/V JOHN ELLIOTT PILLSBURY and to the University of Miami for making my participation financially possible. I also thank the National Geographic Society and the National Science Foundation for their support of this program.

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Scyllarus planorbis new species

Material Examined.—The material examined is listed in Table 1.

Description.—The rostrum is short and blunt, and only slightly constricted behind the apex. The upper surface is somewhat convex but bears no tooth or tubercle. The pregastric and gastric teeth are very low and flattened, protruding hardly at all from the surface of the carapace. They are broadly rounded anteriorly and followed by a few indistinct, wide and flattened squamiform submedian tubercles. The gastric tooth is slightly more conspicuous than the pregastric. The cardiac tooth also is very low and inconspicuous, being only slightly more distinct than the gastric tooth; it curves down towards the top. A double row of about five flattened shallow and wide submedian squamiform tubercles is placed behind the cardiac tooth. The inner margin of the orbit is without teeth. The branchial carina is low and is rather widely interrupted by the cervical groove; there is no tubercle in the gap. The anterior branchial carina in its distal part forms the inner margin of the orbit; it shows no teeth there and merges under a broadly and smoothly rounded angle with the anterior margin of the carapace. The posterior part of the anterior branchial carina also is smooth. The posterior branchial carina ends in a distinct and rounded tooth, which is followed posteriorly by about eight to ten flat squamiform tubercles. At either side of the posterior postrostral carina there are about six squamiform tubercles arranged in two rows. The intermediate tubercles are flat and squamiform; they are four or five in number and form a conspicuous row. The cervical and precervical incisions of the lateral margin of the carapace are distinct. There are four or five anterolateral teeth behind the anterolateral angle, three or four mediolateral and about 10 posterolateral. The intercervical area shows a number of flattened squamiform tubercles. The posterior margin of the carapace is provided with an extremely shallow median emargination. The posterior groove is deep and narrow. Between it and the posterior margin there are two transverse grooves indicated by a row of hairs. The posterior of these grooves is far less conspicuous than the anterior.

The first abdominal somite bears an uninterrupted transverse groove over the middle. From this groove about 16 longitudinal grooves extend posteriorly, and some of these are forked; these grooves stop before reaching the posterior margin. The posterior margin of each of the first to fourth somites shows a shallow median emargination, which is slightly more distinct than that of the posterior margin of the carapace. The anterior half of the abdominal somites is smooth and shows no grooves. The posterior half of the somites shows the usual arborescent markings, although these are fainter than in related species. None of the somites shows an elevated median carina. The central figure of the arborescent markings is rather

TABLE 1
Scyllarus planorbis N. SP., MATERIAL EXAMINED

Pillsbury station	Locality	Location	Depth (fathoms)	Gear	Date	Specimen
332	off Panama	9°31.2'N, 78°53.0'W	28	10-ft ottertrawl	8 July 1966	2 ♂
333	off Panama	9°33.0'N, 78°49.0'W to 9°32.8'N, 78°49.9'W	31	10-ft ottertrawl	8 July 1966	3 ♂
361	off Colombia	8°51.9'N, 76°37.2'W to 8°53.9'N, 76°37.2'W	20	10-ft ottertrawl	12 July 1966	1 ♂, 2 ♀
362	off Colombia	8°57.5'N, 76°33.6'W to 9°00.3'N, 76°30.5'W	30-35	10-ft ottertrawl	12 July 1966	6 ♂, 3 ♀ (1 ovigerous)
365	off Colombia	9°31.3'N, 76°15.4'W to 9°32.5'N, 76°17.0'W	31-32	10-ft ottertrawl	13 July 1966	13 ♂, 8 ♀ (3 ovigerous); holotype in this lot
366	off Colombia	9°31.0'N, 75°59.5'W to 9°31.6'N, 75°56.0'W	18-20	10-ft ottertrawl	13 July 1966	6 ♂, 9 ♀ (6 ovigerous)
367	off Colombia	9°31.1'N, 75°49.6'W to 9°31.1'N, 75°47.0'W	19-20	10-ft ottertrawl	13 July 1966	10 ♂, 21 ♀ (14 ovigerous)
368	off Colombia	9°31.2'N, 75°41.1'W to 9°31.2'N, 75°38.6'W	20	10-ft ottertrawl	13 July 1966	3 ♀ (2 ovigerous)
370	off Colombia	9°37.9'N, 75°50.4'W to 9°37.6'N, 75°51.5'W	20	10-ft ottertrawl	13 July 1966	7 ♂, 23 ♀ (21 ovigerous)
371	off Colombia	9°40.0'N, 76°01.5'W to 9°41.0'N, 76°05.4'W	25-30	10-ft ottertrawl	13 July 1966	28 ♂, 27 ♀ (18 ovigerous)
378	off Colombia	9°54.6'N, 75°42.4'W to 9°56.7'N, 75°42.3'W	28-32	10-ft ottertrawl	14 July 1966	7 ♂, 6 ♀ (4 ovigerous)
379	off Colombia	10°02.2'N, 75°41.3'W to 10°03.6'N, 75°42.6'W	30	10-ft ottertrawl	14 July 1966	13 ♂, 23 ♀ (18 ovigerous)
380	off Colombia	10°06.5'N, 75°48.1'W to 10°04.7'N, 75°49.1'W	35-38	10-ft ottertrawl	14 July 1966	3 ♂, 14 ♀ (11 ovigerous)
396	off Colombia	9°18.2'N, 76°24.8'W to 9°17.6'N, 76°25.0'W	37-38	10-ft ottertrawl	17 July 1966	1 ♂, 3 ♀ (2 ovigerous)

TABLE 1 (Continued)

Pillsbury station	Locality	Location	Depth (fathoms)	Gear	Date	Specimen
397	off Colombia	9°12.8'N, 76°27.1'W to 9°11.0'N, 76°27.8'W	34-36	10-ft ottertrawl	17 July 1966	1 ♂
400	off Colombia	8°52.4'N, 76°50.4'W to 8°52.4'N, 76°51.5'W	50-54	10-ft ottertrawl	17 July 1966	2 ♂
402	off Colombia	8°51.2'N, 77°01.6'W to 8°49.1'N, 77°04.1'W	40	10-ft ottertrawl	17 July 1966	11 ♂, 11 ♀ (8 ovigerous) 1 ♀
403	off Colombia	8°48.7'N, 77°12.7'W to 8°47.6'N, 77°14.2'W	53-54	10-ft ottertrawl	17 July 1966	
412	off Colombia	8°38.9'N, 77°13.2'W to 8°41.6'N, 77°13.0'W	30-33	40-ft ottertrawl	18 July 1966	1 ♂, 5 ♀ (3 ovigerous)
425	off Panama	9°38.9'N, 79°15.3'W to 9°40.2'N, 79°17.4'W	35-38	10-ft ottertrawl	19 July 1966	3 ♂, 1 ovigerous ♀
433	off Panama	9°20.5'N, 80°13.5'W to 9°19.6'N, 80°15.5'W	35-37	10-ft ottertrawl	20 July 1966	1 ♂, 4 ♀ (3 ovigerous)
435	off Panama	9°08.5'N, 80°29.5'W to 9°08.5'N, 80°30.5'W	20-26	10-ft ottertrawl	20 July 1966	5 ♂, 13 ♀ (11 ovigerous)
437	off Panama	9°00.1'N, 80°45.8'W to 8°59.7'N, 80°46.7'W	30	10-ft ottertrawl	20 July 1966	1 ♂, 6 ♀ (2 ovigerous)
619	off Honduras	15°58.2'N, 87°39.0'W to 15°56.0'N, 87°33.5'W	10-35	10-ft ottertrawl	20 March 1968	3 ♂, 12 ♀ (8 ovigerous)
621	off Honduras	15°56.3'N, 87°32.2'W to 15°56.0'N, 87°30.0'W	25-35	40-ft ottertrawl	20 March 1968	1 ♂
623	off Honduras	16°00.0'N, 86°08.0'W to 15°59.6'N, 86°07.0'W	23-30	10-ft ottertrawl	21 March 1968	5 ♂, 10 ♀ (4 ovigerous)
624	off Honduras	15°59.5'N, 86°05.5'W to 15°59.5'N, 86°04.0'W	19-26	10-ft ottertrawl	21 March 1968	9 ♂, 28 ♀ (14 ovigerous)
625	off Honduras	15°59.5'N, 86°02.5'W to 15°59.5'N, 86°01.0'W	15-20	10-ft ottertrawl	21 March 1968	6 ♂, 13 ♀ (7 ovigerous)
626	off Honduras	15°57.6'N, 86°09.0'W to 15°58.0'N, 86°10.0'W	19-22	10-ft ottertrawl	21 March 1968	1 ovigerous ♀

TABLE 1 (Continued)

Pillsbury station	Locality	Location	Depth (fathoms)	Gear	Date	Specimen
627	off Honduras	15°56.5'N, 86°14.0'W	25	10-ft ottertrawl	21 March 1968	1 ♂, 1 ovigerous ♀
671	off Surinam (bottom mostly shells)	7°07.0'N, 55°08.0'W to 7°07.0'N, 55°05.0'W	34-35	10-ft ottertrawl	11 July 1968	12 ♂, 19 ♀ (16 ovigerous)
696	off British Guiana	8°38.0'N, 58°56.0'W to 8°35.0'N, 58°51.0'W	30-32	10-ft ottertrawl	16 July 1968	2 ♂, 2 ovigerous ♀
699	off the mouth of the Orinoco, Venezuela	9°30.0'N, 60°15.0'W	35	41-ft ottertrawl	16 July 1968	3 ♂, 1 ovigerous ♀
705	off Venezuela (bottom, broken shell rubble with outcroppings of rock covered with Gorgonaria)	10°45.0'N, 62°00.0'W to 10°45.5'N, 62°02.5'W	42-47	10-ft ottertrawl	18 July 1968	1 ovigerous ♀ 1 juvenile
714	off Venezuela (bottom muddy with some shells)	11°29.0'N, 63°24.3'W to 11°30.0'N, 63°23.9'W	32	10-ft ottertrawl	19 July 1968	3 ovigerous ♀
716	off Venezuela (bottom, sand or mud)	11°29.0'N, 63°51.0'W	31-37	10-ft ottertrawl	20 July 1968	1 ♂, 1 ovigerous ♀
731	off Venezuela (bottom, shells and some mud)	10°20.0'N, 65°41.0'W to 10°22.2'N, 65°41.8'W	31-33	10-ft ottertrawl	22 July 1968	7 ♂, 9 ♀ (6 ovigerous)
751	off Venezuela (hard bottom)	10°45.3'N, 68°08.3'W to 10°46.1'N, 68°07.7'W	24-25	10-ft ottertrawl	26 July 1968	1 ♂, 4 ♀ (1 ovigerous)
756	off Venezuela	11°33.1'N, 69°12.6'W to 11°34.5'N, 69°11.0'W	11-21	10-ft ottertrawl	27 July 1968	3 ♂, 1 ovigerous ♀
790	off Colombia (bottom, mud)	11°01.0'N, 75°05.0'W	20-22	10-ft ottertrawl	31 July 1968	1 ♂, 1 ovigerous ♀
791	off Colombia (hard bottom)	10°56.0'N, 75°26.0'W to 10°56.9'N, 75°26.9'W	23-24	10-ft ottertrawl	1 August 1968	2 ♂, 5 ♀ (4 ovigerous)
793	off Colombia (bottom, mixed rubble of broken shell)	10°40.0'N, 75°31.0'W	14-16	10-ft ottertrawl	1 August 1968	2 ovigerous ♀
796	off Colombia	10°20.7'N, 75°39.1'W to 10°18.4'N, 75°38.1'W	33-36	10-ft ottertrawl	1 August 1968	22 ♂, 39 ♀ (16 ovigerous)

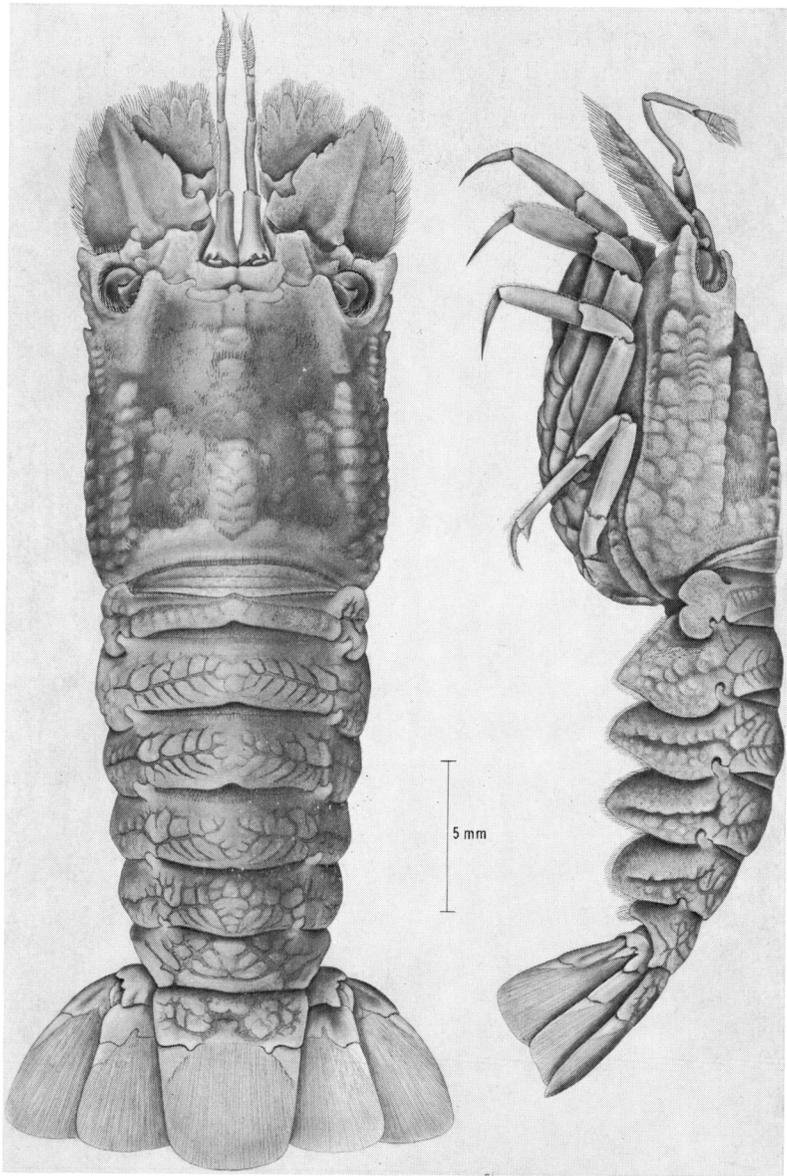


FIGURE 1. *Scyllarus planorbis* new species, holotype female from PILLSBURY station 365. Dorsal and lateral views. Miss Constance Stolen, fec.

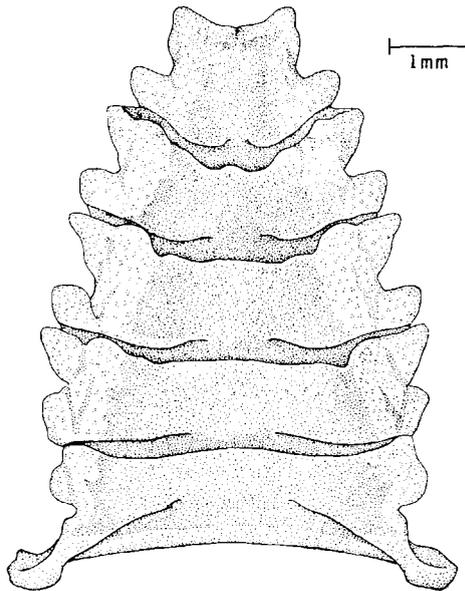


FIGURE 2. *Scyllarus planorbis* new species, ovigerous paratype female from PILLSBURY station 371. Thoracic sternum. Miss Constance Stolen, fec.

wide and lobulated. The pleura of the first abdominal somite are broadly rounded with a deep V-shaped incision in the middle of the distal margin. The pleura of the second somite have the apex bluntly narrowed and slightly posteriorly produced. The pleura of the third and fourth somites are triangular with a blunt top; that of the fifth somite is rounded. The sixth somite and the hard part of the telson show large flattened squami-form tubercles. The outer lateral angles of the hard part of the telson are about rectangular; the intermediate posterior teeth are much narrower and more triangular.

The anterior margin of the antennular somite is deeply incised in the middle; each half is slightly concave in the middle and convex laterally. The first segment of the antennular peduncle is flattened dorsally.

The anterior margin of the last antennal segment is almost straight and bears four or five teeth, the inner three or four of which taper regularly towards the bluntly rounded tip. The inner of these three or four teeth is distinctly smaller than the rest. The inner margin of the segment bears a single tooth. The fifth segment ends on the inner side in a blunt tooth with an inconspicuous dorsal carina. The anterior margin of the fourth segment bears three or four teeth, of which the distal are less conspicuous

than the proximal. The outer margin of this segment bears two distinct proximal, and sometimes 1 to 4 indistinct distal, teeth in the distal half; the proximal half of the margin is straight. The upper surface of the fourth segment bears a single oblique carina; no additional carinae or tubercles are present there.

The anterior margin of the epistome is about straight with a blunt triangular tooth-like lobe at the inner side of the antennae.

The anterior margin of the thoracic sternum is somewhat thickened; it is almost transverse with a small triangular median notch; the anterolateral angles are about rectangularly rounded. Some distance behind each anterolateral angle a wide and blunt carina starts; it runs for a very short distance along the lateral margin of the sternum and then fades out. The sternum is concave and none of the somites shows a median tubercle. The posterior margin of the sternum is straight.

The first pereopod is rather heavy. The second is more slender. The dactylus of the second leg is somewhat longer than that of the first, but as long as or slightly shorter than those of the third or fourth legs, which are distinctly longer than that of the fifth leg. The dactyli of the first and second legs are naked, those of the other legs show a very short velvety pubescence. The dactylus of the fifth leg of the adult female is shorter than that of the male and is more strongly curved. The propodi of all the legs except the second and the fifth have a dorsal fringe of hairs. The propodi of the second to fourth legs are somewhat compressed. That of the third leg is widest, being slightly more than twice as long as high; it bears some ventral hairs, but no actual ventral fringe. Ventral hairy fringes are not present on the propodi of the other legs, either. The carpus of the third leg, but not that of the other legs, possesses a dorsal fringe of hairs. The meri of legs 2 to 5 show a longitudinal groove in the upper part of the outer surface.

The pleopods of the second abdominal somite of the male have the endopod and the exopod of the same length. They are elongate triangular, the endopod being narrower and slightly longer than the exopod. In the following pleopods of the male the endopod is reduced to a mere bud-like process, the exopod being much larger and leaf-shaped.

The eggs are numerous and small, measuring about 0.4 mm in diameter.

Size.—The carapace length of the examined males varied between 5 and 11 mm, that of the females between 5 and 13 mm. Oviparous females had a carapace varying between 7 and 12 mm in length.

Colour.—The following colour description is based on living specimens collected at Station 371. The body is olive green marbled with brownish spots and streaks; the greenish colour, however, predominates. The brown-

ish colour is mostly arranged in more or less distinct transverse bands, especially on the abdomen. There, such darker bands are present on the smooth anterior part of the somites (i.e., the part of the somite that disappears under the preceding somite in the stretched animal), and on, and slightly behind, the transverse grooves over the middle of the posterior part of the somites; there is always a light strip along the anterior and the posterior margins of the posterior part of the somites. The pleura have a light spot on their bases, are darker in the middle, and become again lighter towards the apices. The dorsal surface of the first abdominal somite is of an evenly dark colour and shows no conspicuous pattern of spots. The sixth abdominal somite and the tailfan as a rule are very light. The distal part of the antennae is lighter than the proximal. Brownish spots are visible on the antennae. The lower surface of the body is light. The legs are usually not banded; sometimes a dark spot is present on the propodus of the fifth leg and one in the distal part of the merus of the third to fifth legs.

Affinities.—*Scyllarus planorbis* is most closely similar to *Scyllarus chacei* Holthuis, 1960, but may be distinguished by a number of distinct and constant features, which even in the field make a separation of the two easily possible. *Scyllarus planorbis* is a distinctly smaller species. It does not reach a carapace length of much more than 10 mm, while the smallest ovigerous female of *S. chacei* seen by me has the carapace 11 mm long. The median carapace teeth, especially the gastric and cardiac, are high and sharp in *S. chacei*, low and hardly noticeable in *S. planorbis*. The inner orbital margin in *S. chacei*, as in almost all other species of the genus, has two strong and sharp teeth; in *S. planorbis* this margin is entirely smooth. In *S. chacei* the last thoracic sternite bears a median tubercle; this tubercle is not found in *S. planorbis*. The propodi of the third and fourth leg of the new species are widened and compressed, with a sharp lower margin; in *S. chacei* the propodi of these legs are more cylindrical with the lower margin broadly rounded. The distal teeth of the last antennal segment in *S. chacei* are broadly truncated, more narrowly rounded in *S. planorbis*. The colouration of the two species is quite different. The new species is more dull and lacks the vivid orange-brown spots of colour found in *S. chacei*. In *S. chacei* the first abdominal somite shows two distinct, but small, submedian dorsal spots and two less distinct lateral spots; no such spots are present in *S. planorbis*, where the segment is of a uniform dark colour dorsally. In *S. chacei* the legs are distinctly marked with dark bands; such bands are not present in the new species.

Even though *Scyllarus chacei* is known from the entire known range of *S. planorbis*, the two species were never found together in the same catch. It is possible therefore that they inhabit different ecological niches.

Habitat.—*Scyllarus planorbis* was taken at depths between 16 and 53 fathoms, possibly between 10 and 54 fathoms; the majority of the specimens were found between 19 and 38 fathoms. The bottom at the stations whence the material came, so far as known, was hard and consisted of shell rubble with some mud or sand.

Types.—The holotype specimen is a female with a carapace length of 10 mm, from PILLSBURY Sta. 365; the dorsal and lateral views of this specimen are shown in Figure 1. The specimen is preserved in the collection of the U. S. National Museum, Washington, D. C. Paratypes are in the Museum of the Institute of Marine Sciences, University of Miami; the U. S. National Museum; and the Rijksmuseum van Natuurlijke Historie, Leiden.

SUMARIO

UNA NUEVA ESPECIE DE LANGOSTA ESCILARIDA, *Scyllarus planorbis*, DEL SUROESTE DEL MAR CARIBE Y PARTE SEPTENTRIONAL DE AMERICA DEL SUR

Se encontró que una nueva especie de langosta escilárida, *Scyllarus planorbis*, se presentaba bastante comúnmente frente a las costas del Atlántico de Honduras, Panamá, Colombia y Venezuela, en profundidades entre las 16 y 53 brazas. La especie, de la que se da una descripción completa, es más pequeña que ninguno de los representantes del género previamente conocidos en América. La especie a quien más se parece es *Scyllarus chacei*, pero puede distinguirse fácilmente de ella, por un número de caracteres constantes y conspicuos, de los cuales se da una relación.

LITERATURE CITED

HOLTHUIS, L. B.

1960. Preliminary descriptions of one new genus, twelve new species and three new subspecies of Scyllarid lobsters (Crustacea Decapoda Macrura). Proc. biol. Soc. Washington, 73: 147-154.

ROBERTSON, P. B.

Unpublished. The larval development of some western Atlantic lobsters of the family Scyllaridae. Thesis, June 1968, University of Miami. xvi + 513 pp., 111 figs. (*Scyllarus* n. sp. on pp. 107-118, and in figs. 50-59.)