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BIOLOGICAL INVESTIGATIONS OF THE DEEP SEA. 45.

PORTUNUS BINOCULUS, N. SP., A NEW DEEP-WATER SWIMMING CRAB FROM THE CARIBBEAN REGION (CRUSTACEA, DECAPODA, BRACHYURA)[1]

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ABSTRACT

Portunus binoculus, a new species of swimming crab, is described and the differences from the closely related *Portunus spinicarpus* are given.

INTRODUCTION

During the 1966 cruise of the R/V PILLSBURY off the Caribbean coasts of Panama and Colombia, a new species of *Portunus* was collected that at first was taken to be *P. spinicarpus* Stimpson, but which on closer examination proved to be distinct and new to science. In the field the two species can be very easily distinguished by their colour pattern. A search in the collections of the Institute of Marine Sciences revealed that the species had been taken on a previous occasion during a cruise of the R/V GERDA, which also belongs to the University of Miami. The new species is described here, and also the material of *Portunus spinicarpus* collected by the PILLSBURY and GERDA, as well as some other material, is discussed.

I take this opportunity to thank Drs. Gilbert L. Voss and Frederick M. Bayer, for making it possible for me to join several of the PILLSBURY cruises and for their interest and help with this study.

Portunus binoculus new species

Portunus (*Achelous*) *spinicarpus* p.p. Rathbun, 1930: 92.

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

Description.—The new species is extremely close to *Portunus spinicarpus* (Stimpson); the two are most easily distinguished by the different colour pattern. These colour differences are indeed the reason that the two were first recognized as distinct species.

The carapace of *Portunus binoculus* is longer than, and not as broad as, that of *P. spinicarpus*, and therefore the arch formed by the anterolateral margins and the front is higher. Although the cervical groove is distinct in

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the new species, the other depressions are less conspicuous. The two transverse ridges over the gastric area, which are very conspicuous and elevated in *P. spinicarpus*, are mere rows of granules in *P. binoculus*. The epibranchial region is also more sunken in *P. spinicarpus*.

The front bears four very sharp triangular teeth, which are more sharply pointed and more markedly set off from the frontal margin than as a rule is found in *P. spinicarpus*. The gap between the middle and the outer teeth is wider than in most specimens of *P. spinicarpus*. The inner orbital angle is sharply pointed and is separated from the outer orbital tooth by a rather wide emargination. On its outer basal side this tooth bears a blunt angular projection or tooth. The orbital hiatus is V-shaped and widely open, much more so than in *P. spinicarpus*. The outer orbital angle ends in a sharp tooth; between this tooth and the orbital hiatus another sharp spinelike tooth is present next to a second orbital hiatus, which is V-shaped and wider than in *P. spinicarpus*. The lower margin of the orbit ends in a sharp inner tooth, which reaches so far forward that it is the most anterior point of the body of the animal. The lower orbital margin meets the outer orbital tooth under a V-shaped angle; in *P. spinicarpus* this angle as a rule is far narrower, especially in the proximal part.

The anterolateral margin of the carapace bears the usual nine teeth, of which the second, fourth, and sixth are somewhat smaller than the others. The last tooth is extremely long, being almost four times as long as the preceding tooth. The branchial ridge is distinct; after leaving the lateral tooth it curves forward and then inward, its inner part being convex with a flat or slightly concave top. There are two transverse gastric ridges, the anterior being wider than the posterior; they are connected by a longitudinal ridge which extends over the gastric region. No other ridges are present. The granules that define these ridges are far less distinct than in *P. spinicarpus*. Also the other groups of granules (one behind the orbit and before the distal end of the anterior transverse gastric ridge, one or two on each branchial area behind the branchial ridge, and two submedian behind the cervical groove) are also far less distinct than in *P. spinicarpus*. The posterolateral margin of the carapace is evenly rounded or somewhat angular.

The distal lobe of the merus of the third maxilliped in the new species is distinctly larger than in *P. spinicarpus*; it is wider distally and reaches farther forward. The last three segments of this maxilliped are iridescent.

The cheliped has the merus usually more slender than in *P. spinicarpus*. The anterior margin of the merus carries four or five spines; its posterior margin ends in a distal spine. The inner spine of the carpus reaches well beyond the basis of the fingers in the males; in the females it fails to reach the end of the palm. The inner margin of the spine bears a fringe of long red-coloured hairs. The carpus also bears a small outer distal spine, a high

TABLE 1
Portunus binoculus, N. SP., MATERIAL EXAMINED

Station*	Locality	Location	Depth (m)	Gear	Date	Specimens
G-645	Straits of Florida	25°50′N, 79°19′W to 25°52′N, 79°20′W	284–293	10-ft otter-trawl	1 July 1965	1 ♂, holotype, CL 19 mm; 3 ♂, CL 13–19 mm; 1 ovigerous ♀, CL 18 mm
G-820	Off the north coast of Cuba	23°05′N, 79°01′W	220–412	10-ft otter-trawl	22 June 1967	2 ♂, CL 17 and 18 mm; 1 ♀, CL 14 mm
G-880	Near Arrowsmith Bank, Yucatan, Mexico	21°04′N, 86°25′W	101–329	10-ft otter-trawl	9 Sept. 1967	1 ♂, CL 23 mm; 1 ♀, CL 22 mm
G-913	New Providence Channel, Bahama Islands	25°53′N, 78°30′W	284–467	10-ft otter-trawl	26 Sept. 1967	1 ♀, CL 23 mm
G-924	New Providence Channel, Bahama Islands	25°52′N, 78°27′W	256–311	10-ft otter-trawl	29 Sept. 1967	2 ♂, CL 17 and 18 mm
G-954	Near Arrowsmith Bank, Yucatan, Mexico	21°11′N, 86°30′W	165–311	10-ft otter-trawl	28 Jan. 1968	1 ♂, CL 16 mm; 1 ♀, CL 16 mm; 1 juvenile, CL 11 mm
G-1011	Santaren Channel	23°43′N, 79°32′W to 23°36′N, 79°34′W	291–311	10-ft otter-trawl	14 June 1968	3 ♂, CL 17–22 mm; 2 ♀, CL 14 and 16 mm
P-330	Off Caribbean coast of Panama	9°37.5′N, 78°54′W to 9°37.0′N, 78°52.5′W	63–127	10-ft otter-trawl	8 July 1966	1 ♂, CL 27 mm; 2 ♀, CL 18 and 19 mm (1 female with a sacculinid parasite)
P-372	Off Caribbean coast of Colombia	9°45′N, 76°12.0′W to 9°48′N, 76°09.6′W	81–100	10-ft otter-trawl	13 July 1966	2 ♂, CL 17 and 17 mm; 1 juvenile, CL 9 mm
P-375	Off Caribbean coast of Colombia	9°59.0′N, 76°02.0′W to 9°59.0′N, 75°59.7′W	71– 74	40-ft otter-trawl	14 July 1966	1 ♂, CL 26 mm; 1 ♀, CL 21 mm; 2 ovigerous ♀, CL 22 and 24 mm
P-446	Off Caribbean coast of Panama	8°58.1′N, 81°26.3′W to 8°56.1′N, 81°26.8′W	109–295	Blake trawl	21 July 1966	1 ♂, CL 21 mm; 1 ♀, CL 23 mm
P-783	Off Caribbean coast of Colombia (bottom, mud with much terrestrial detritus)	11°20′N, 73°48.5′W to 11°22′N, 73°44′W	143–174	10-ft otter-trawl	31 July 1968	1 ♂, CL 14 mm; 2 ovigerous ♀, CL 21 and 24 mm
P-797	Off Caribbean coast of Colombia	10°21.9′N, 75°47.3′W to 10°20.2′N, 75°44.0′W	152–170	10-ft otter-trawl	1 Aug. 1968	1 ovigerous ♀, CL 20 mm

* G = GERDA; P = PILLSBURY.

ridge on the lower surface, and two granulated ridges above. The upper margin of the palm bears a strong subdistal tooth. The outer surface bears a sharp tooth near the articulation with the carpus. From this spine, a ridge extends toward the base of the fingers. A similar ridge, parallel to it, lies slightly below it. The lower margin of the chela also shows an elevated ridge. The inner surface of the chela is flat and in the male is heavily clothed with long red hairs, which give the impression that the entire inner surface is red; in the female this surface bears only short uncoloured hairs. The fingers have the cutting edges provided with many small sharp teeth of different size. The upper margin of the dactylus bears four, and the lower margin of the fixed finger bears two carinae; a sharp carina is furthermore present on either side of the cutting edges. The upper margin of the dactylus bears a dense fringe of long red hairs.

The following pereiopods are as in *Portunus spinicarpus*. The fifth leg has the merus with small spinules in the distal part of the lower margin as in *P. spinicarpus*; these spinules, however, are placed on the margin proper and do not form a separate lobe.

The male abdomen is similar to that of *P. spinicarpus*; it is more slender in the juveniles than in the adults. The sixth somite is somewhat longer than wide in the young, and is distinctly wider than long in the adults. The male pleopods show no obvious differences from those of *P. spinicarpus*.

At first I obtained the impression that *P. binoculus* has more slender appendages than *P. spinicarpus*, this being especially distinct in the merus of the chelipeds and those of the fifth pereiopods. However, it proved that this character, especially in the chelipeds, is very variable and that such an overlap occurs that it cannot be used for separating the two species. The most reliable character for the separation of the two species is the colour pattern.

Size.—The carapace length of the examined females ranged from 14 to 24 mm. The carapace breadth, inclusive of the lateral spines ranged from 29 to 46 mm, and without the lateral spines, from 20 to 31 mm. These three measurements for ovigerous females are, respectively, 16 to 24 mm, 34 to 47 mm, and 25 to 34 mm. For the males they are 17 to 27 mm, 35 to 55 mm, and 24 to 42 mm. For the four juveniles they are 9 to 11 mm, 18 to 24 mm, and 8 to 16 mm.

Colour.—The carapace of the living animal is uniformly greyish green; it is not marbled. There are two distinct submedian red spots in the middle of the carapace, each being placed on a branchial lobe. A dark median longitudinal line extends over the cardiac and intestinal regions. Also the distal end of the branchial carina is of a dark red colour. The tip of the lateral spine of the carapace is dark, with a broad pale band below it. The eyestalk shows no red spot. The upper surface of the merus of the chelipeds

is spotted over the greater part of its length, the spots being absent in the distal part. These dark spots often are more or less distinctly arranged in rows, but there never is a broad dark streak just before the posterior margin as in *P. spinicarpus*. As in that species, dark spots are present to the inside of the spines on the anterior margin of the merus, and a dark spot also is present near the articulation with the carpus. The carpus shows a distinct dark spot just before this articulation and a short, dark line in the proximal half of the posterior margin. The naked margin of the long carpal spine bears a long proximal dark streak and a short distal one; in between, the margin is uncoloured. A small dark spot is present between the base of the long spine and the articulation with the merus. In *P. spinicarpus* an uninterrupted dark line extends from the articulation up to the tip of the spine. The outer surface of the chela is uncoloured, except for a red spot at the base of the spine in the proximal part. The inner surface of the palm in the females is uncoloured except for a red basal spot; the inner surfaces of the fingers in the females have a very distinct, sharp, red proximal band; the distal part is uncoloured except for the tips, which are dark. In the males the inner surface of the chela and the long carpal spine are covered with rather long, dark reddish hairs, which obscure the surface colouration. The hairy fringes on the inner side of the long carpal spine and the upper margin of the dactylus also are dark red. The hairy fringes of the dactylus and the lower margin of the propodus of the second and third pereiopods are dark red, as are also those of the dactylus and the distal part of the propodus of the fifth leg. There is no red spot on the dactylus of the fifth leg.

In preserved material, the dark colour turns bright red and seems to persist for a long time, which greatly facilitates the identification of the material.

Distribution.—The species has a rather wide distribution. It has repeatedly been found in the deeper waters between the Bahamas, Florida, and Cuba, and furthermore in the southwestern Caribbean off the coasts of Yucatan (Mexico), Panama, and Colombia. In several instances it was collected together with *Portunus spinicarpus*. Therefore, it is interesting that the intensive exploration by the PILLSBURY of the waters off the Guianas and Venezuela in 1968 did not provide a single specimen of the species, while *Portunus spinicarpus* was taken there at no less than 40 stations.

Habitat.—The catches in which *Portunus binoculus* was taken ranged from 63 to 467 m in depth; however, the species is known with certainty from depths between 74 and 291 m. For only one of the catches the type of bottom is known, viz., at PILLSBURY Sta. 783, where the bottom was noted to be muddy with much terrestrial detritus, such as leaves, etc.

Parasites.—One of the specimens, a female from PILLSBURY Sta. 330, carried a sacculinid parasite under the abdomen.

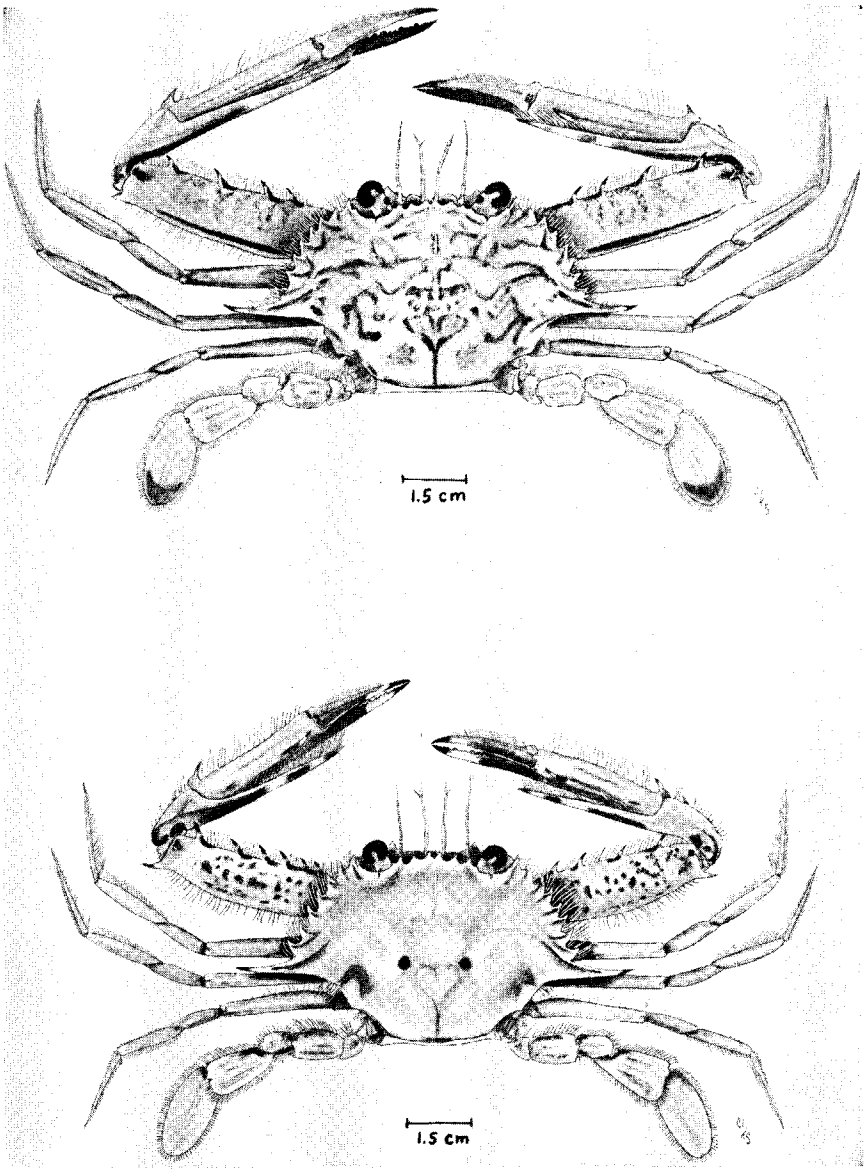

FIGURE 1. Top, *Portunus spinicarpus* (Stimpson), ♂, PILLSBURY Sta. 435; Bottom, *Portunus binoculus*, nov. spec., ♂, PILLSBURY Sta. 446. Miss C. K. Stolen, *fecit*.

Remarks.—The present species is so close to *Portunus spinicarpus* that it is not surprising that it has been confused with that species by at least one previous author. Rathbun (1930: 93), in her monograph of the American cancroid crabs, under *Portunus spinicarpus* described the colour of various specimens, which agrees well with that of the true *P. spinicarpus*, but apart from those she mentioned that: "Two very young, the larger 6 mm long (61270) have a large spot of vinaceous buff either side of the middle of the carapace." These specimens were obtained 7 miles south of No. 2 buoy, Dry Tortugas, at a depth of about 20 fathoms.

Types.—The holotype is a male with CL 19 mm, from GERDA Sta. 645. It is deposited in the U. S. National Museum, Washington, D. C., under Cat. No. 113560. The paratypes are partly in the collection of the Institute of Marine Sciences, University of Miami, Florida, and partly in the Rijksmuseum van Natuurlijke Historie, Leiden.

Portunus spinicarpus (Stimpson, 1871)

Achelous spinicarpus Stimpson, 1871: 148.
Portunus (*Achelous*) *spinicarpus* p.p. Rathbun, 1930: 92, pl. 45.

Material Examined.—The material examined is listed in Table 2.

Size.—The carapace length of the males ranged from 15 to 34 mm, of the females from 13 to 32 mm, and of the ovigerous females from 9 to 32 mm. For these three categories, the total carapace breadth (the lateral spines included) is respectively, 35 to 64 mm, 30 to 58 mm, and 18 to 58 mm. For the same categories, the carapace breadth without the lateral spines is 26 to 46 mm, 21 to 47 mm, and 13 to 47 mm. Juveniles have a carapace length of 4 to 11 mm. The very small adult specimens, like the ovigerous females with carapace lengths of 9 to 15 mm, possibly lived under less than optimal conditions; in all respects, except for size, they proved similar to the larger form.

Parasites.—Several specimens, all females, carried sacculinid parasites under the abdomen, usually one specimen, sometimes two. The parasitized specimens are all small (carapace length 8 to 19 mm).

Colour.—The carapace of the living animal is greyish green, marbled all over with short, curved, reddish-brown lines and streaks. There are no conspicuous spots, and the two submedian spots found in *P. binoculus* are entirely lacking. There is, however, as in *P. binoculus*, a dark median longitudinal line over the cardiac and intestinal regions. The branchial carina has the same colouration as in *P. binoculus*. The eyestalk has a conspicuous red spot on the anterior surface. The third maxilliped has the last three segments iridescent as in *P. binoculus*. The upper surface of the merus of the cheliped shows a dark band just before, and parallel with, the posterior

TABLE 2

Portunus spinicarpus (STIMPSON, 1871), MATERIAL EXAMINED

Station*	Locality	Location	Depth (m)	Gear	Date	Specimens
G-7	Straits of Florida	25°46′N, 80°03.5′W	137	dredge	25 May 1962	1 ♂, 1 ♀
G-19	Straits of Florida	25°46′N, 80°05′W	92	dredge	31 May 1962	1 ♀
G-28	Straits of Florida	25°38′N, 80°04′W	92–110	ottertrawl	21 June 1962	11 ♂, 24 ♀, 4 ovigerous ♀
G-233	Straits of Florida	25°40′N, 79°21′W to 25°41′N, 79°23′W	403–421	ottertrawl	30 Jan. 1964	1 ♂
G-236	Straits of Florida	25°15′N, 79°15′W to 25°15′N, 79°14′W	384	10-ft otter-trawl	30 Jan. 1964	6 specimens
G-238	Straits of Florida	25°17′N, 79°14′W to 25°20′N, 79°15′W	297–406	ottertrawl	30 Jan. 1964	1 ♂, 3 ♀
G-272	Straits of Florida	25°28′N, 79°18′W to 25°28.5′N, 79°20′W	357–384	ottertrawl	30 Mar. 1964	2 ♂
G-274	Straits of Florida	25°27.5′N, 79°20′W to 25°29.5′N, 79°18.5′W	312–348	ottertrawl	30 Mar. 1964	13 specimens
G-275	Straits of Florida	25°21′N, 79°15′W to 25°23′N, 79°17′W	293–375	ottertrawl	31 Mar. 1964	2 ♂
G-276	Straits of Florida	25°23′N, 79°17′W	329	ottertrawl	31 Mar. 1964	6 specimens (1 ovigerous)
G-282	Straits of Florida	25°38′N, 80°05′W to 25°47′N, 80°05′W	70–86	ottertrawl	1 April 1964	2 specimens
G-394	Straits of Florida	27°22′N, 79°11′W to 27°22′N, 79°11′W	223	5-ft screen dredge	19 Sept. 1964	1 ♂
G-409	Straits of Florida	26°39′N, 80°00′W to 26°38′N, 80°00′W	64–91	5-ft screen dredge	22 Sept. 1964	1 specimen
G-467	Straits of Florida	24°18′N, 82°56′W to 24°17′N, 82°48′W	348–370	10-ft otter-trawl	25 Jan. 1965	1 ♂, 1 ♀
G-566	Straits of Florida	24°25′N, 82°56′W to 24°25′N, 82°54′W	64	10-ft otter-trawl	12 April 1965	43 ♂, 54 ♀ (30 ovigerous)
G-568	Straits of Florida	24°23′N, 82°53′W to 24°22′N, 82°50′W	90	10-ft otter-trawl	12 April 1965	2 ♂, 10 ♀ (9 ovigerous)

* G = GERDA, P = PILLSBURY, O = OREGON.

TABLE 2 (CONTINUED)

Station*	Locality	Location	Depth (m)	Gear	Date	Specimens
G-572	Straits of Florida	24°23′N, 82°57′W to 24°24′N, 82°56′W	97–82	10-ft otter-trawl	13 April 1965	11 ♂, 6 ♀ (9 ovigerous) (one of the males is selected to be the neotype of *Achelous spinicarpus* Stimpson, 1871)
G-573	Straits of Florida	24°24′N, 82°57′W to 24°23′N, 82°54′W	80–86	10-ft otter-trawl	13 April 1965	4 ♂, 11 ♀ (8 ovigerous)
G-588	Straits of Florida	24°36′N, 81°04′W to 24°38′N, 81°02′W	64	10-ft otter-trawl	14 April 1965	3 ♂, 14 ♀ (6 ovigerous)
G-592	Straits of Florida	24°48′N, 80°37′W to 24°48′N, 80°37′W	71	10-ft otter-trawl	14 April 1965	3 ♂
G-594	Straits of Florida	24°50′N, 80°37′W to 24°51′N, 80°37′W	37	Brattström dredge	14 April 1965	2 ♀ (1 ovigerous)
G-602	Straits of Florida	25°05′N, 80°14′W	95	10-ft otter-trawl	15 April 1965	22 ♂, 23 ♀ (13 ovigerous)
G-603	Straits of Florida	25°12′N, 80°12′W to 25°13′N, 80°11′W	48–51	10-ft otter-trawl	15 April 1965	1 ♂
G-604	Straits of Florida	25°14′N, 80°09′W to 25°16′N, 80°09′W	91	10-ft otter-trawl	15 April 1965	1 ♂, 1 ♀
G-609	Straits of Florida	25°25′N, 80°07′W	37	Brattström dredge	15 April 1965	2 ♀
G-617	Straits of Florida	25°33′N, 80°04′W	91–101	Brattström dredge	16 April 1965	1 ovigerous ♀
G-751	Straits of Florida	25°13′N, 80°10′W to 25°13′N, 80°10′W	92–97	10-ft otter-trawl	14 Sept. 1965	12 ♂, 17 ♀ (1 ovigerous)
G-752	Straits of Florida	25°14′N, 80°09′W	86–95	10-ft otter-trawl	14 Sept. 1965	15 ♂, 13 ♀ (5 ovigerous)
G-767	Straits of Florida	25°13′N, 80°10′W to 25°11′N, 80°11′W	88–108	10-ft otter-trawl	26 Jan. 1966	7 ♂, 7 ♀ (1 ovigerous)
G-769	Straits of Florida	25°11′N, 80°10′W to 25°11′N, 80°10′W	110–113	10-ft otter-trawl	26 Jan. 1966	1 ♂, 1 ovigerous ♀

* G = GERDA, P = PILLSBURY, O = OREGON.

TABLE 2 (CONTINUED)

Station*	Locality	Location	Depth (m)	Gear	Date	Specimens
G-770	Straits of Florida	25°11′N, 80°09′W to 25°10′N, 80°10′W	146	10-ft otter-trawl	26 Jan. 1966	1♀
G-798	Straits of Florida	25°56′N, 79°22′W to 26°00′N, 79°17.5′W	402.3	ottertrawl	12 Sept. 1966	1♀
G-833	Straits of Florida	25°10′N, 80°10′W	91–99	10-ft otter-trawl	10 July 1967	1♂, 2♀
G-889	Near Arrowsmith Bank, Yucatan, Mexico	20°55′N, 86°28′W	178–220	—	10 Sept. 1967	1♀
P-199	Gulf Stream off Florida	27°59′N, 79°20′W	311–329	1-m² dredge	11 Aug. 1964	2 specimens
P-324	Off Caribbean coast of Panama	9°44′N, 79°31′W to 9°42.5′N, 79°30.5′W	54–63	40-ft otter-trawl	7 July 1966	26 specimens
P-330	Off Caribbean coast of Panama	9°37.5′N, 78°54′W to 9°37.0′N, 78°52.5′W	63–127	10-ft otter-trawl	8 July 1966	3♂, 5♀ (1 ovigerous)
P-332	Off Caribbean coast of Panama	9°31.2′N, 78°53′W	51	10-ft otter-trawl	8 July 1966	26♂, 39♀ (10 ovigerous)
P-333	Off Caribbean coast of Panama	9°33′N, 78°49′W to 9°32.8′N, 78°49.9′W	56	10-ft otter-trawl	8 July 1966	34♂, 19♀ (9 ovigerous)
P-334	Off Caribbean coast of Panama	9°33′N, 78°50′W to 9°32.8′N, 78°49.8′W	50	40-ft otter-trawl	8 July 1966	24♂, 21♀ (6 ovigerous)
P-335	Off Caribbean coast of Panama	9°33′N, 78°43.6′W	56	40-ft otter-trawl	8 July 1966	1♂, 1 ovigerous ♀
P-347	Golfo de Uraba, Colombia	8°43′N, 77°03′W to 8°44.3′N, 77°00.6′W	53–54	10-ft otter-trawl	11 July 1966	18♂, 5♀ (1 ovigerous)
P-348	Golfo de Uraba, Colombia	8°38.0′N, 77°02.2′W to 8°36.3′N, 77°02.1′W	58	10-ft otter-trawl	11 July 1966	6 specimens
P-349	Golfo de Uraba, Colombia	8°31.6′N, 77°02.0′W to 8°32.8′N, 77°02.8′W	53–54	10-ft otter-trawl	11 July 1966	7♂, 4♀ (2 ovigerous)
P-350	Golfo de Uraba, Colombia	8°28.1′N, 77°00.3′W to 8°26.6′N, 76°57.4′W	51–54	40-ft otter-trawl	11 July 1966	8 specimens

* G = GERDA, P = PILLSBURY, O = OREGON.

TABLE 2 (CONTINUED)

Station*	Locality	Location	Depth (m)	Gear	Date	Specimens
P-352	Golfo de Uraba, Colombia	8°20.1′N, 76°53.6′W to 8°23.3′N, 76°53.2′W	51–54	40-ft otter-trawl	11 July 1966	1 ♂, 4 ♀
P-361	Off Caribbean coast of Colombia	8°51.9′N, 76°37.2′W to 8°53.9′N, 76°37.2′W	36	10-ft otter-trawl	12 July 1966	10 specimens
P-362	Off Caribbean coast of Colombia	8°57.5′N, 76°33.6′W to 9°00.3′N, 76°30.5′W	54–64	10-ft otter-trawl	12 July 1966	10 ♂, 7 ♀ (1 ovigerous)
P-365	Off Caribbean coast of Colombia	9°31.3′N, 76°15.4′W to 9°32.5′N, 76°17′W	56–58	10-ft otter-trawl	13 July 1966	21 specimens
P-366	Off Caribbean coast of Colombia	9°31.0′N, 75°59.5′W to 9°31.6′N, 75°56.0′W	33–36	10-ft otter-trawl	13 July 1966	10 specimens
P-367	Off Caribbean coast of Colombia	9°31.1′N, 75°49.6′W to 9°31.1′N, 75°47.0′W	34–36	10-ft otter-trawl	13 July 1966	5 ♂, 10 ♀ (4 ovigerous)
P-370	Off Caribbean coast of Colombia	9°37.9′N, 75°50.4′W to 9°37.6′N, 75°51.5′W	36	10-ft otter-trawl	13 July 1966	6 ♂, 3 ♀ (1 ovigerous)
P-371	Off Caribbean coast of Colombia	9°40.0′N, 76°01.5′W to 9°41′N, 76°05.4′W	45–54	10-ft otter-trawl	13 July 1966	25 ♂, 21 ♀ (2 ovigerous)
P-372	Off Caribbean coast of Colombia	9°45′N, 76°12.0′W to 9°48′N, 76°09.6′W	81–100	10-ft otter-trawl	13 July 1966	8 ♂, 11 ♀ (1 ovigerous)
P-375	Off Caribbean coast of Colombia	9°59.0′N, 76°02.0′W to 9°59.0′N, 75°59.7′W	129–134	40-ft otter-trawl	14 July 1966	3 ♂, 1 ovigerous ♀
P-378	Off Caribbean coast of Colombia	9°54.6′N, 75°42.4′W to 9°56.7′N, 75°42.3′W	51–58	10-ft otter-trawl	14 July 1966	25 ♂, 33 ♀ (7 ovigerous)
P-379	Off Caribbean coast of Colombia	10°02.2′N, 75°41.3′W to 10°03.6′N, 75°42.6′W	54	10-ft otter-trawl	14 July 1966	4 ♂, 5 ♀ (1 ovigerous)
P-380	Off Caribbean coast of Colombia	10°06.5′N, 75°48.1′W to 10°04.7′N, 75°49.1′W	64–69	10-ft otter-trawl	14 July 1966	7 ♂, 2 ♀ (1 ovigerous)
P-392	Off Caribbean coast of Colombia	9°45.1′N, 76°09.1′W to 9°45.4′N, 76°10.8′W	74–78	10-ft otter-trawl	16 July 1966	14 specimens
P-396	Off Caribbean coast of Colombia	9°18.2′N, 76°24.8′W to 9°17.6′N, 76°25.0′W	67–69	10-ft otter-trawl	17 July 1966	10 ♂, 16 ♀

* G = GERDA, P = PILLSBURY, O = OREGON.

TABLE 2 (CONTINUED)

Station*	Locality	Location	Depth (m)	Gear	Date	Specimens
P-397	Off Caribbean coast of Colombia	9°12.8′N, 76°27.1′W to 9°11.0′N, 76°27.8′W	62–65	10-ft otter-trawl	17 July 1966	4♀
P-398	Off Caribbean coast of Colombia	9°05.6′N, 76°32.1′W to 9°07.2′N, 76°30.9′W	158–174	10-ft otter-trawl	17 July 1966	4♂, 9♀
P-399	Off Caribbean coast of Colombia	9°01.3′N, 76°40.2′W to 9°00.1′N, 76°38.5′W	118–177	10-ft otter-trawl	17 July 1966	2♀
P-400	Off Caribbean coast of Colombia	8°52.4′N, 76°50.4′W to 8°52.4′N, 76°51.5′W	91–98	10-ft otter-trawl	17 July 1966	25 specimens
P-402	Off Caribbean coast of Colombia	8°51.2′N, 77°01.6′W to 8°49.1′N, 77°04.1′W	72	10-ft otter-trawl	17 July 1966	37♂, 46♀ (4 ovigerous)
P-403	Off Caribbean coast of Colombia	8°48.7′N, 77°12.7′W to 8°47.6′N, 77°14.2′W	96–98	10-ft otter-trawl	17 July 1966	3 specimens
P-411	Off Caribbean coast of Colombia	8°40.7′N, 77°21.8′W to 8°40.7′N, 77°21.8′W	29–42	10-ft otter-trawl	18 July 1966	9 specimens
P-412	Off Caribbean coast of Colombia	8°38.9′N, 77°13.2′W to 8°41.6′N, 77°13.0′W	54–60	40-ft otter-trawl	18 July 1966	14 specimens
P-422	Off Caribbean coast of Panama	9°33.8′N, 78°36.2′W to 9°34.7′N, 78°36.7′W	69–72	10-ft otter-trawl	19 July 1966	1♂, 1 juvenile
P-425	Off Caribbean coast of Panama	9°38.9′N, 79°15.3′W to 9°40.2′N, 79°17.4′W	63–69	10-ft otter-trawl	19 July 1966	84♂, 36♀ (2 ovigerous)
P-430	Off Caribbean coast of Panama	9°31.0′N, 79°51.0′W to 9°30.5′N, 79°52.5′W	60–63	10-ft otter-trawl	20 July 1966	14♂, 7♀
P-432	Off Caribbean coast of Panama	9°18.2′N, 80°03.3′W to 9°18.4′N, 80°04.0′W	24	10-ft otter-trawl	20 July 1966	1♂
P-433	Off Caribbean coast of Panama	9°20.5′N, 80°13.5′W to 9°19.6′N, 80°15.5′W	63–67	10-ft otter-trawl	20 July 1966	23♂, 9♀ (1 ovigerous), 3 juveniles
P-434	Off Caribbean coast of Panama	9°14.6′N, 80°21.8′W to 9°13.5′N, 80°22.8′W	47–49	10-ft otter-trawl	20 July 1966	6 specimens
P-435	Off Caribbean coast of Panama	9°08.5′N, 80°29.5′W to 9°08.5′N, 80°30.5′W	36–47	10-ft otter-trawl	20 July 1966	8♂, 5♀ (3 ovigerous)

* G = GERDA, P = PILLSBURY, O = OREGON.

TABLE 2 (CONTINUED)

Station*	Locality	Location	Depth (m)	Gear	Date	Specimens
P-437	Off Caribbean coast of Panama	9°00.1′N, 80°45.8′W to 8°59.7′N, 80°46.7′W	54	10-ft otter-trawl	20 July 1966	3 ♂, 4 ♀ (1 ovigerous)
P-439	Off Caribbean coast of Panama	8°51.3′N, 81°03.4′W to 8°51.3′N, 81°03.4′W	18–22	10-ft otter-trawl	20 July 1966	1 ♀
P-574	Off the coast of Honduras (rubble bottom with algae and sponges)	16°16′N, 82°26.5′W to 16°18′N, 82°27′W	36.6	10-ft otter-trawl	20 May 1967	10 juveniles
P-649	Off French Guiana	5°54′N, 52°04′W to 6°00′N, 52°06′W	82–95	40-ft otter-trawl	8 July 1968	4 specimens
P-650	Off French Guiana (bottom, broken shells)	6°07′N, 52°19′W	84–92	10-ft otter-trawl	8 July 1968	9 specimens
P-652	Off French Guiana	6°20′N, 52°34′W	60–62	10-ft otter-trawl	8 July 1968	1 juvenile
P-654	Off French Guiana	6°07′N, 53°19′W to 6°08.5′N, 53°21.5′W	31	10-ft otter-trawl	9 July 1968	2 ♂, 1 ♀
P-657	Off French Guiana	6°58′N, 53°10′W to 7°01′N, 53°15′W	128–132	10-ft otter-trawl	9 July 1968	17 ♂, 19 ♀ (15 ovigerous)
P-658	Off French Guiana (bottom, hard shell rubble)	7°10′N, 53°36′W	126–136	10-ft otter-trawl	9 July 1968	8 specimens
P-662	Off Surinam (bottom, mud and sand)	6°49′N, 54°26.5′W to 6°51′N, 54°30′W	44	10-ft otter-trawl	10 July 1968	40 specimens (1 ♀ with sacculinid)
P-663	Off Surinam (bottom, broken shells over hard mud)	6°29′N, 54°41′W to 6°32′N, 54°44′W	24	10-ft otter-trawl	10 July 1968	3 specimens
P-669	Off Surinam (bottom, dead shell rubble)	6°39′N, 55°15′W to 6°43′N, 55°20′W	33	10-ft otter-trawl	10 July 1968	17 specimens
P-671	Off Surinam (bottom, mostly shells)	7°07′N, 55°08′W	62–64	10-ft otter-trawl	11 July 1968	34 specimens, including 2 ovigerous ♀ and 2 ♀ parasitized with sacculinids

* G = GERDA, P = PILLSBURY, O = OREGON.

TABLE 2 (CONTINUED)

Station*	Locality	Location	Depth (m)	Gear	Date	Specimens
P-684	Off Surinam (bottom, sponges, broken shell, dead coral, etc., and some mud)	7°19′N, 56°51.0′W	55–59	10-ft otter-trawl	14 July 1968	5 specimens
P-695	Off British Guiana (bottom, sandy mud)	8°12′N, 58°33′W	37	10-ft otter-trawl	16 July 1968	8 specimens
P-696	Off British Guiana	8°38′N, 58°56′W to 8°35′N, 58°51′W	55–59	10-ft otter-trawl	16 July 1968	10 specimens (3 ♀ with sacculinids)
P-699	S.E. of Trinidad	9°30′N, 60°15′W	64	40-ft otter-trawl	16 July 1968	19 ♂, 41 ♀ (11 ovigerous)
P-705	Gulf of Paria, Trinidad (bottom, broken shell rubble with outcroppings of rock covered with Gorgonaria)	10°45′N, 62°00′W to 10°45.5′N, 62°02.5′W	77–86	10-ft otter-trawl	18 July 1968	6 juveniles
P-707	Off Venezuela (bottom, rubble)	11°21′N, 62°21′W to 11°23.5′N, 62°23.0′W	79	10-ft otter-trawl	19 July 1968	1 ♀
P-708	Off Venezuela (bottom, broken shells and coral rubble)	11°24.7′N, 62°40.5′W to 11°26.6′N, 62°40.5′W	70–73	10-ft otter-trawl	19 July 1968	1 ♀
P-709	Off Venezuela (bottom, coral rubble and sponges)	11°08.8′N, 62°46.1′W to 11°12.9′N, 62°45.5′W	46	10-ft otter-trawl	19 July 1968	1 ♀, 1 juvenile
P-710	Off Venezuela (bottom hard, some shell and coral rubble, probably also sand)	10°47.4′N, 62°55′W 10°47.6′N, 62°56′W	46–48	10-ft otter-trawl	19 July 1968	10 juveniles
P-712	Off Venezuela (bottom composed of masses of *Arca zebra* aggregated with rocks and barnacles)	11°08′N, 63°18′W to 11°11′N, 63°17′W	22–27	10-ft otter-trawl	19 July 1968	11 specimens (10 with sacculinids)

* G = GERDA, P = PILLSBURY, O = OREGON.

TABLE 2 (CONTINUED)

Station*	Locality	Location	Depth (m)	Gear	Date	Specimens
P-714	Off Venezuela (bottom, muddy with some shells)	11°29′N, 63°24.3′W to 11°30.0′N, 63°23.9′W	59	10-ft otter-trawl	19 July 1968	4♂, 1♀
P-716	Off Venezuela (bottom, sand or mud)	11°29′N, 63°51′W	57–68	10-ft otter-trawl	20 July 1968	4 specimens
P-721	Off Venezuela (hard bottom)	11°06.5′N, 64°22.5′W to 11°07.0′N, 64°23.4′W	26–27	10-ft otter-trawl	21 July 1968	1♀
P-722	Off Venezuela	11°04′N, 64°44′W to 11°05.2′N, 64°45′W	92	10-ft otter-trawl	21 July 1968	3 specimens
P-723	Off Venezuela (bottom, mud)	10°43.5′N, 64°16′W to 10°45.5′N, 64°15′W	60–71	10-ft otter-trawl	21 July 1968	108 specimens (1 ovigerous ♀)
P-727	Off Venezuela (bottom, broken shell over mud with scattered rock or coral)	10°20′N, 65°02′W	64	10-ft otter-trawl	21 July 1968	19 specimens (2 ovigerous ♀)
P-728	Off Venezuela (hard bottom)	10°22.5′N, 65°23′W to 10°25.7′N, 65°21.6′W	86	10-ft otter-trawl	21 July 1968	4 specimens
P-731	Off Venezuela (bottom, shells and some mud)	10°20′N, 65°41′W to 10°22.2′N, 65°41.8′W	57–60	10-ft otter-trawl	22 July 1968	19♂, 11♀ (1 ovigerous)
P-736	Off Venezuela	10°57′N, 65°52′W to 11°03′N, 65°59′W	70–156	41-ft otter-trawl	22 July 1968	2♀
P-737	Off Venezuela (bottom, rocks and calcareous algae with a dense crinoid population)	10°44′N, 66°07′W to 10°45′N, 66°08′W	60–73	10-ft otter-trawl	22 July 1968	4 specimens
P-738	Off Venezuela	10°42.5′N, 66°21′W to 10°44′N, 66°20.4′W	150–192	10-ft otter-trawl	22 July 1968	6♂, 5♀
P-739	Off Venezuela	10°54.7′N, 66°17.8′W to 10°57.6′N, 66°18.0′W	234–280	10-ft otter-trawl	23 July 1968	3♂, 2♀

* G = GERDA, P = PILLSBURY, O = OREGON.

TABLE 2 (CONTINUED)

Station*	Locality	Location	Depth (m)	Gear	Date	Specimens
P-745	Off Venezuela (bottom, coral rubble and many sponges)	11°57.9′N, 66°50′W to 11°59.5′N, 66°49′W	64–66	10-ft otter-trawl	24 July 1968	1 juvenile
P-749	Off Venezuela	10°37.0′N, 67°57.9′W to 10°40.3′N, 67°57.9′W	59	10-ft otter-trawl	25 July 1968	22 specimens (2 ovigerous)
P-751	Off Venezuela (hard bottom)	10°45.3′N, 68°08.3′W to 10°46.3′N, 68°07.7′W	44–46	10-ft otter-trawl	26 July 1968	25 specimens (5 ovigerous ♀, 1 with sacculinid)
P-752	Off Venezuela (bottom, mud)	11°06.3′N, 68°14.6′W to 11°18.5′N, 68°14.3′W	95–132	10-ft otter-trawl	26 July 1968	129 specimens (10 ovigerous)
P-756	Off Venezuela	11°33.1′N, 69°12.6′W to 11°34.5′N, 69°11′W	20–38	10-ft otter-trawl	27 July 1968	12♂, 7♀ (5 ovigerous, 1 with sacculinid)
P-757	Off Venezuela (bottom, rubble)	11°39.6′N, 69°22.1′W to 11°42′N, 69°20′W	161–187	10-ft otter-trawl	27 July 1968	1♂, 1♀
P-758	Off Venezuela (bottom, broken shell and rock over mud)	11°42.2′N, 69°40.0′W to 11°44.0′N, 69°40.0′W	15–18	10-ft otter-trawl	27 July 1968	1 juvenile
P-760	Off Venezuela	12°15.4′N, 69°57.5′W to 12°16.0′N, 69°57.1′W	60–64	10-ft otter-trawl	27 July 1968	1♀
P-761	Off Venezuela	11°52.2′N, 70°21.8′W to 11°53.5′N, 70°21.5′W	311–348	10-ft otter-trawl	27 July 1968	52 specimens (2 ovigerous)
P-762	Off Colombia (bottom, mud with innumerable echinoids—*Moira*)	11°36.1′N, 70°34.1′W to 11°37.0′N, 70°33.1′W	33–35	10-ft otter-trawl	27 July 1968	13♂, 10♀ (6 ovigerous)
P-766	Off Colombia (hard bottom covered with shell fragments)	12°14.3′N, 70°40.0′W to 12°16.9′N, 70°39.9′W	64	10-ft otter-trawl	28 July 1968	5 specimens
P-773	Off Colombia (bottom, with sponges)	12°17.0′N, 72°15.0′W to 12°18.0′N, 72°13.8′W	60–64	10-ft otter-trawl	29 July 1968	5 specimens
P-775	Off Colombia	12°05.0′N, 72°38.5′W to 12°06.0′N, 72°37.0′W	79–82	10-ft otter-trawl	29 July 1968	7 specimens

* G = GERDA, P = PILLSBURY, O = OREGON.

TABLE 2 (CONTINUED)

Station*	Locality	Location	Depth (m)	Gear	Date	Specimens
P-783	Off Colombia (bottom, mud with much terrestrial detritus, leaves, etc.)	11°20′N, 73°48.5′W to 11°22′N, 73°44′W	143–174	10-ft otter-trawl	31 July 1968	36 ♂, 13 ♀ (4 ovigerous)
P-786	Off Colombia (bottom, mud)	11°08.5′N, 74°18.1′W to 11°07.6′N, 74°19.3′W	101–165	10-ft otter-trawl	31 July 1968	15 specimens
P-790	Off Colombia (bottom, mud)	11°01′N, 75°05′W	37–40	10-ft otter-trawl	31 July 1968	11 ♂, 18 ♀ (2 ovigerous)
P-791	Off Colombia (hard bottom)	10°56.0′N, 75°26.0′W to 10°56.9′N, 75°26.9′W	42–44	10-ft otter-trawl	1 Aug. 1968	31 ♂, 73 ♀ (22 ovigerous)
P-794	Off Colombia (bottom with algae)	10°32.2′N, 75°35.9′W to 10°32′N, 75°34.9′W	18–46	10-ft otter-trawl	1 Aug. 1968	2 juveniles
P-795	Off Colombia	10°32′N, 75°36′W to 10°31.8′N, 75°34.9′W	27–46	10-ft otter-trawl	1 Aug. 1968	4 ♂, 1 ♀
P-796	Off Colombia	10°20.7′N, 75°39.1′W to 10°18.4′N, 75°38.1′W	60–66	10-ft otter-trawl	1 Aug. 1968	7 specimens
P-797	Off Colombia	10°21.9′N, 75°47.3′W to 10°20.2′N, 75°44.0′W	152–170	10-ft otter-trawl	1 Aug. 1968	2 ♀ (1 ovigerous)
ARIAS	Off Fowey Light	—	—	—	11 April 1964	1 ♂, 26 ♀ (11 ovigerous)
J. Wentworth, Collector	South of Cape Florida	—	183	—	26 March 1948	1 ♂, 1 ♀
ARIAS	Honduras	—	366	—	1952	2 ♂
O-4166	Off British Guiana	7°34′N, 57°26′W	48	65-ft fish trawl	18 Feb. 1963	2 ♂
O-4179	Off Dutch Guiana	6°46′N, 54°44′W	46	65-ft fish trawl	20 Feb. 1963	1 specimen
O-4181	Off Dutch Guiana	7°01′N, 54°21′W	64	65-ft fish trawl	21 Feb. 1963	1 ♂

* G = GERDA, P = PILLSBURY, O = OREGON.

margin; except for a dark spot on the inside of the basis of each of the spines on the anterior margin, and one at the articulation with the carpus, no other spots are present on the merus. The carpus has an inconspicuous streak in the basal part of the inner margin. The long carpal spine is red, with some white spots in the distal part; the margin of the spine facing the chela has a fringe of long, red hairs. The chelae of both sexes are very similar to those of *P. binoculus*. The following pereiopods are greyish green with pink dactyli. The fifth legs are greyish green, with a very distinct red spot in the distal part of the dactylus.

The colour pattern of the carapace, of the merus of the cheliped, and of the fifth leg distinguish this species at a glance from *P. binoculus*.

Remarks.—In the males, the chelipeds are distinctly longer than in the females. A male specimen from PILLSBURY Sta. 433 has an abnormal chela; the fixed finger shows a long and slender spine implanted in the middle of the outer surface. This spine is directed slightly obliquely forwards and has a dark point.

This species is well described by Rathbun (1930), be it that her material, judging by her colour description, also included *P. binoculus*.

From Stimpson's (1871) original description of *Achelous spinicarpus*, it is practically impossible to find out whether or not his material was homogeneous and, if so, which of the two species he had before him. The characters given by Stimpson are found in both species. As the present species is the more common of the two, it is very likely that at least part of Stimpson's material belonged to it. This cannot be checked anymore as, according to Rathbun (1930: 92), Stimpson's types are no longer extant. Also, among the Stimpson types recently discovered in the British Museum (Nat. Hist.) (see Evans, 1967: 399-411) there is no material of this species. In order to settle the question of the identity of this species it is necessary to select a neotype, for which I indicate a male specimen with CL 29 mm; CB with lateral spines 61 mm, exclusive of lateral spines 46 mm, from GERDA Sta. 572. This specimen is now deposited in the collection of the U. S. National Museum under Cat. No. 123207.

Distribution.—*Portunus spinicarpus* is known from the western Atlantic between Cape Hatteras, North Carolina, U. S. A., and São Paulo, Brazil. It lives usually in deeper waters: 9-550 m.

SUMARIO

Portunus binoculus, NUEVA ESPECIE, UN NUEVO CANGREJO NADADOR DE AGUAS PROFUNDAS DE LA REGION DEL CARIBE (CRUSTACEA, DECAPODA, BRACHYURA)

Se da una descripción de *Portunus binoculus* n. sp., un cangrejo nadador de aguas más profundas (74-291 m) del Caribe septentrional y sudocci-

dental. Se compara la nueva especie con una próxima a ella, *Portunus spinicarpus*, que se presenta por toda la región de las Indias Occidentales y que ha sido encontrada en profundidades entre 9 y 550 m. Se examinó un extenso material de ambas especies, colectado mayormente por los barcos de investigaciones GERDA y JOHN ELLIOT PILLSBURY de la Universidad de Miami.

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