

A NEW SPECIES OF *PERICLIMENAEUS* BORRADAILE, 1915
(CRUSTACEA: DECAPODA: PALAEMONIDAE) FROM
THE NORTHEASTERN GULF OF MEXICO¹

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ABSTRACT

A new species of *Periclimenaeus* is described from the northeastern Gulf of Mexico off the west coast of Florida. It is closest to *P. atlanticus* (Rathbun, 1901) but can be distinguished from that species in that the anterior pair of dorsal spines of the telson arise in the anterior sixth of the segment rather than at the end of the anterior third as in *P. atlanticus*.

This new species of palaemonid shrimp was discovered during a survey of the decapod crustacean fauna of the northeastern Gulf of Mexico. It is reported on now as it will be some time before a complete report will be ready for publication.

I thank Dr. Fenner A. Chace, Jr. for pointing out the distinctness of this species and for placing at my disposal a portion of his unpublished manuscript on the natantian decapods of the West Indies. The Florida State University System's Institute of Oceanography provided ship time.

The abbreviation *tl* refers to total length measured from the posterior margin of the orbit to the tip of the telson, *cl* refers to carapace length measured from the posterior margin of the orbit to the posterior margin of the carapace, and USNM refers to the National Museum of Natural History (formerly U. S. National Museum), Smithsonian Institution.

Periclimenaeus chacei new species

Material. Holotype: 1 ovigerous female, *tl* 8 mm, *cl* 2.3 mm; Gulf of Mexico; off the West coast of Florida; 28°31'N, 84°16'W; 26 m; Petersen grab; coral rubble bottom;

9 April 1970; coll. L. G. Abele; "Tursiops" cruise 70-12, st. 16; USNM 137910. Paratype: 1 male, *tl* 5 mm, *cl* 1.8 mm; locality data as for holotype; USNM 137911.

Description. The rostrum is smooth and directed slightly downwards. It falls slightly short of the distal margin of the basal antennular segment. The rostrum is armed dorsally with four equally spaced, distinct teeth, excluding the tip of the rostrum. The first is placed anterior to the margin of the orbit and the last tooth is about one-third of the distance from the acute tip. The teeth become more forwardly directed distally. The ventral margin is unarmed and convex with a very slight emargination about half the distance from the tip. A strong antennal spine is present at the lower margin of the orbit. The anterolateral angle of the carapace is broadly rounded and anteriorly produced. The carapace is smooth and no spines other than the antennal are present.

The abdomen is smooth. All pleura are rounded posterolaterally although the sixth tends to be somewhat subacute there. The pleura of the female are more broadly rounded than in the male, especially the third and fourth which are much expanded. A small tubercle is present on the anterolateral margin of one of the sixth pleura of the male, which is lacking on the other side. The fifth and sixth segments are subequal in length and each is half as long as the telson. There is a median projection ending in a small lobe on the ventral surface of the fifth abdominal somite of the male which is lacking on the female. The telson decreases evenly in width from anterior to posterior with the posterior margin being about half as wide as the anterior margin. The length is slightly more than twice the width. The telson is armed with two pairs of dorsal

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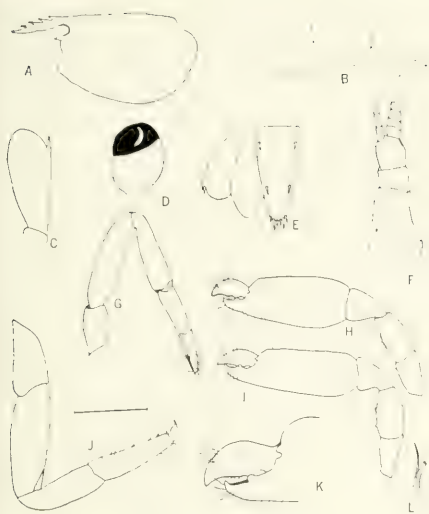


Figure 1. *Periclimenaeus chacei* n. sp. Paratype male (except E). A, carapace. B, lateral view of last three abdominal segments. C, scaphocerite. D, eye. E, telson and left pair of uropods. F, antennule. G, first pereopod. H, male cheliped. I, female cheliped. J, third pereopod. K, anterior portion of male chela. L, appendix masculina and appendix interna. Scale = 2 mm for A, E, H, I; 1 mm for others.

spines. The first pair is located about one-sixth of the distance from the anterior margin and the second pair is located about three-fifths of the distance from the anterior margin. The spines are large and are adjacent to the lateral margins. The posterior margin of the telson is armed with three pairs of spines with the lateral pair being placed slightly anterior to the intermediate and submedian pairs. The intermediate pair is longer than the submedian pair which is longer than the lateral pair.

The cornea is rounded and well pigmented; it is slightly over half the length of the eye peduncle.

The stylocerite of the antennule is short and broad with a subacute tip. It falls well short of the middle of the basal segment of the antennular peduncle. The lateral margin of the basal segment is laterally expanded forming a blunt lobe slightly distal to the tip of the stylocerite. A small spine is present on the distal lateral margin of the basal segment. Another small spine is present on the ventral surface of the basal segment at about the same level as the blunt lobe but towards the medial rather than the lateral margin. The basal segment is over three times as long as the penultimate and slightly over twice as long as the ultimate segment.

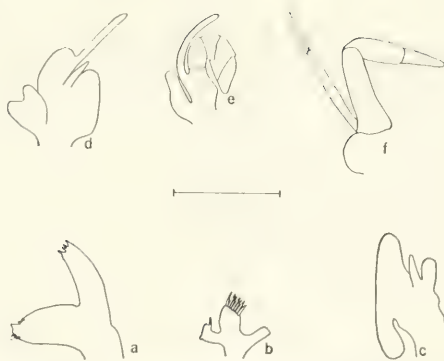


Figure 2. *Periclimenaeus chacei* n. sp. Paratype male. a, mandible. b, maxillula. c, maxilla. d, first maxilliped. e, second maxilliped. f, third maxilliped. Scale = 1 mm for b-f; 0.5 mm for a.

The outer antennular flagellum has the rami fused for five articles, the shorter one being free for one article only.

The scaphocerite increases in width distally. The length is over twice the greatest width. The outer margin is straight and ends in a strong tooth which does not extend to the distal margin of the lamella. There is no spine on the base of the scaphocerite. The scaphocerite falls slightly short of the distal margin of the ultimate segment of the antennular peduncle.

The incisor process of the mandible ends in four teeth. The molar process ends in one spine with setae present. The palp of the maxillula has a small lobe armed with a small spine on the medial distal margin; the upper endite is armed with about seven strong spines along the distal margin; the lower endite is narrower than the upper and is truncate distally. The maxilla has the inner endite simple and slightly shorter than the palp; the scaphognathite is relatively narrow. The first maxilliped has the coxal and basal endites fused; the flagellum of the exopod is well-developed and the caridean lobe is longer than broad; the epipod is distinctly bilobed. The second maxilliped is typical; the exopod is long and strong and an epipod is present. The third maxilliped extends to about the middle of the scaphocerite. The ultimate segment is about half as long as the antepenultimate and two-thirds as long as the penultimate. The distal two segments are relatively broad, the penultimate being about three times as long as broad. The exopod is longer than the antepenultimate segment and an epipod is present. The branchial formula is the following:

	Maxillipeds			Pereiopods				
	1	2	3	1	2	3	4	5
Pleurobranch	—	—	—	1	1	1	1	1
Arthrobranch	—	—	—	—	—	—	—	—
Podobranch	—	—	—	—	—	—	—	—
Epipod	1	1	1	—	—	—	—	—
Exopod	1	1	1	—	—	—	—	—

The first legs are equal. They extend beyond the scaphocerite by the full length of the carpus. The fingers are slightly shorter than the palm, are unarmed and taper slightly to the tips. The chela is slightly longer than the carpus. The merus is longer than the carpus and slightly over twice as long as the ischium. On both specimens only the larger of the second legs is present. They extend beyond the scaphocerite by the length of the carpus. The chela is smooth. The movable finger is about one-third as long as the palm and extends distinctly beyond the immovable finger. The upper margin is strongly convex. The movable finger is armed in the proximal portion with a large blunt tooth which fits into a cavity on the immovable finger. Adjacent to this cavity on the lateral margin of the immovable finger is a blunt tooth. The edge of the movable finger is finely serrate anterior to the blunt tooth. The immovable finger is slightly spoon-shaped anterior to the cavity. The palm is large and swollen and is highest in the proximal portion. The carpus widens greatly in the distal portion and is less than half as long as the palm. The merus is armed along the inferior margin with about five small tubercles and is about half as long as the palm. The ischium is shorter than the merus and may be armed with a small tubercle on the inferior margin. The chela of the larger second leg of the female is not as strongly swollen as that of the male. The movable finger is not as convex and the palm is proportionately longer and changes little in height from proximal to distal. The third through the fifth pereiopods are similar. The third pereiopod extends beyond the scaphocerite by a portion of the propodus. The propodus is armed with two small spines, one in the distal part of the inferior margin just proximal to the dactylus and the other just proximal to the first. The dactylus is short and ends in a distinct spine. The carpus is a little longer than the propodus. The merus is longer than either the propodus or the carpus. The ischium is shorter than the propodus.

The first pleopods in both sexes lack an appendix interna. The endopod of the first female pleopod is about half as wide and half as long as the exopod with the distal margin

acute. The endopod of the first pleopod of the male is over half as wide but less than half as long as the exopod with the distal margin rounded. An appendix masculina is present on the second pleopod of the male. It is less than half as long as the appendix interna and ends in a long strong seta which extends far beyond the appendix interna. The uropods are broadly ovate, the endopod narrows distally and extends beyond the exopod. The distal margin of the exopod is somewhat truncate and extends beyond both the immovable outer tooth and the longer movable spine which is present just inside the immovable tooth. A diaeresis is absent.

The present female carried about 60 eggs, each about 0.5×0.6 mm, which were early in development.

The specimens, in life, were white. The eggs were a light green color.

Etymology. The specific name is given for Dr. Fenner A. Chace, Jr., of the National Museum of Natural History, who is always so willing to offer help and encouragement to those interested in carcinology.

Remarks. The species is known only from the type locality, a poorly developed patch reef. The specimens were collected with a Petersen grab.

Discussion. *Periclimenaeus chacei* seems to be closest to *P. atlanticus* (Rathbun, 1901) but can be distinguished from that species in that the anterior pair of dorsal spines of the telson arise in the anterior sixth of the segment rather than at the end of the anterior third as in *P. atlanticus*. The major chelae of these two species are quite dissimilar. The chela of *P. atlanticus*, based on a specimen in the National Museum of Natural History (USNM 135532), has both fingers strongly hooked, and curved in a horizontal (perpendicular to the plane of the palm) plane. The movable finger does not extend beyond the immovable finger. The lobe on the movable finger is large and robust, occupying most of the proximal half of the finger. The fingers of the chela of *P. chacei* are not strongly hooked, do not curve in a horizontal plane, and the movable finger extends distinctly beyond the immovable one. The lobe on the movable finger is relatively small and occupies only a small portion of the proximal half of the finger. In *P. atlanticus* the lateral tooth of the scaphocerite extends to, or slightly beyond the distal margin of the lamella, while in *P. chacei* the distal margin of the lamella extends distinctly beyond the lateral tooth of the scaphocerite.