

**Eastern Pacific tropical and subtropical  
decapods (Macrura: Natantia).**

**II. Redescription of the caridean shrimp *Pasiphaea emarginata* (Rathbun, 1902) with a key to the southern California genera and species of Pasiphaeidae\***

by

Manuel M. Murillo\*\*

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**ABSTRACT:** *Pasiphaea emarginata* Rathbun 1902, is redescribed from specimens taken during the VELERO IV oceanographic sampling off southern California, 1960-1970. A key is presented to the genera and species of Pasiphaeidae common in waters over the basins off southern California.

During the cruises of the VELERO IV to the north eastern Pacific an investigation was made of the species composition and depth distribution of the pelagic fauna off southern California. This oceanographic program required intensive midwater sampling with a 10 foot Isaacs-Kidd Midwater Trawl (2), mainly in the upper 1,200 meters. In connection with the publication of the results on depth distribution and vertical migration of caridean decapods taken during this program it was considered appropriate to redescribe and figure little known species as well as to present keys to local deep-sea caridean shrimp.

Hauls made during cruise N° 653 of March 1965 in waters over the Santa Catalina Basin (33° 15'N, 118° 30'W) yielded 102 specimens of *Pasiphaea emarginata* (Rathbun); additional specimens were taken in subsequent cruises to the same area, as well as in cruises to the San Nicolas (33°N, 119°W) and San Clemente (32° 30'N, 118° 15'W) basins. *P. emarginata* was originally described from the Gulf of California (ALBATROSS, station 3009), in 1,570 m of water, and mentioned subsequently by RATHBUN (6), SCHMITT (8) and CHACE (1).

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\*\* Department of Biology, University of Costa Rica.

## SAMPLING GEAR AND ABBREVIATIONS USED

The samples studied were taken with a 3 m (10 ft) Isaacs-Kidd Mid-water Trawl (IKMWT). All the tows were horizontal, the net being lowered and retrieved at 60 m per minute while the vessel moved at 2 knots; once at fishing depth, the vessel's speed was increased to 3.5-4.0 knots. Further information on sampling methods may be obtained from MURILLO (4). N, night; D, day. The sign  $\emptyset$  is used to indicate immature specimens. All lengths refer to carapace length (C.L.).

*Pasiphaea emarginata* Rathbun

(Figs. 1, 2)

*Pasiphaea emarginata* Rathbun, 1902: 902; 1910: 22, Fig. 4; Man, 1920: 2; Schmitt, 1921: 30, Fig. 9, 15; Chace, 1937; 110.

## MATERIAL EXAMINED:

Santa Catalina Basin

Sta	10472	29.3.65	33° 16'N,	118° 42'W:	IKMWT, 0-150 m;	56 $\emptyset$	12.0-16.0 mm,
							17 ♀ 19.0-36.0 mm; 9 ♂ 18.0-36.0 mm (N)
Sta	10475	30.3.65	33° 26'N,	118° 52'W:	IKMWT, 0-1,100 m;	5 $\emptyset$	12.0-17.0 mm,
							11 ♀ 18.0-39.0 mm, 1 ♂ 38.5 mm (N)
Sta	10479	30.3.65	33° 21'N,	118° 42'W:	IKMWT, 0-450 m;	3 ♀	25.0-27.0 mm (N)
Sta	10602	8.6.65	33° 25'N,	118° 53'W:	IKMWT, 0-1,000 m;	3 ♀	23.5-41.0 mm,
							3 ♂ 37.5-46.0 mm (D)
Sta	10696	9.9.65	33° 27'N,	118° 53'W:	IKMWT, 0-950 m;	4 $\emptyset$	7.0-16.0 mm, 1 ♀
							36.0 mm, 1 ♂ 28.0 mm (N)
Sta	10729	25.9.65	33° 11'N,	118° 31'W:	IKMWT, 0-700 m;	17 $\emptyset$	11.0-16.0 mm,
							15 ♀ 20.0-41.0 mm, 4 ♂ 34.0-47.0 mm (N)

DESCRIPTION: Carapace dorsally carinate on its entire length; distinct submarginal low carina running around the dorsal portion of the branchiostegal sinus; the branchiostegal spine short and not extending much beyond the anterolateral margin of carapace (Fig. 1 A). Rostrum short, not reaching anterior margin in lateral view, separated from the front by a smooth curve. Eyes well developed, pigmented dark brown. Antennal scale ending distally in a lateral spine (Fig. 1 B, C).

Abdominal segments: 2nd to 5th carinate on their distal portions; 6th segment compressed above, but a well developed carina absent; telson longer than 6th segment, slightly notched distally, armed with five pairs of spinules, the outer pair the longest (Fig. 2 A, B).

Merus of first pereiopod armed with up to ten spines in adult forms; fingers slender and elongate, cutting edges toothed, one third of the elongate palm; palm with nine movable spines (Fig. 2 C, D).

Merus of second pereiopod with up to twenty spines in adult specimens, C. L. over 34.0 mm; fingers slender, cutting edges toothed, tip curved, about same length as palm. An increase in number of meral spines is common in mature forms, C. L. over 22.0 mm (Fig. 2 E, F).

DISTRIBUTION: Found in meso- and bathypelagic waters off southern California, from Santa Cruz Basin and Santa Barbara Channel to off Punta Banda, Baja California, and off Conception Bay, Gulf of California.

## KEY TO THE SOUTHERN CALIFORNIA GENERA AND SPECIES OF PASIPHAEIDAE

- 1a. Branchiostegal spine present; rostrum a post-frontal spine; mandibular palp absent ..... *Pasiphaea* Savigny
- 1b. Branchiostegal spine absent; rostrum a forward extension of frontal margin of carapace; mandibular palp present, two-segmented in adult forms.....*Parapasiphae* Smith

### Genus PASIPHAEA Savigny, 1916

- 1a. Telson truncate or not deeply forked; branchiostegal spine reaching anterior margin of carapace.
- 2a. Rostrum long and slender, projecting beyond anterior margin of carapace; telson truncate, terminating in four pairs of spinules; branchiostegal spine projecting well beyond anterolateral margin of carapace ..... *P. chacei*
- 2b. Rostrum almost horizontal, extending forward but not reaching anterior margin of carapace; telson not deeply forked, terminating in five pairs of spinules, branchiostegal spine reaching beyond anterolateral margin ..... *P. emarginata*
- 1b. Telson deeply forked or notched; branchiostegal spine may or may not reach anterolateral margin of carapace.
- 3a. Branchiostegal spine reaching anterolateral margin of carapace; gastric spine dentiform, tip acute, the upper margin being nearly horizontal ..... *P. corteziana*
- 3b. Branchiostegal spine not reaching anterolateral margin of carapace; carapace projecting into a post-frontal, dorsal, sharp spine above the gastric region ..... *P. pacifica*

### Genus PARAPASIPHAE Smith, 1884

- 1a. Telson forked or deeply notched distally; dorsal carina of carapace bearing no spines anteriorly; palm of second chelae longer than fingers ..... *P. sulcatifrons*
- 1b. Telson truncate or convex distally; dorsal carina of carapace with one or two spines anteriorly; fingers of second chelae longer than palm ..... *P. cristata*

## RESUMEN

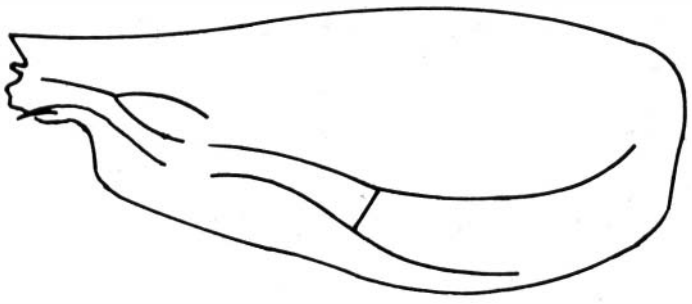
Cerca de 200 especímenes del camarón carídeo *Pasiphaea emarginata* (Rathbun) fueron estudiados en muestras colectadas por el buque de investigación VELERO IV en aguas de la compleja plataforma continental del sur de California, entre enero de 1960 y agosto de 1970. La existencia de abundante material ha sido aprovechada para redescubrir esta especie y elaborar una clave para los géneros y especies de Pasiphaeidae en el área muestreada.

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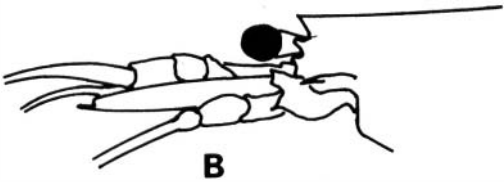
Fig. 1. *Pasiphaea emarginata* Rathbun

- A. Lateral view of carapace showing branchiostegal spine and submarginal carina.
- B. Lateral view of anterior end showing rostrum, eye, branchiostegal spine, antennal peduncle and scale.
- C. Dorsal view of anterior end showing subterminal rostrum, eyes, antennal peduncles and scales.



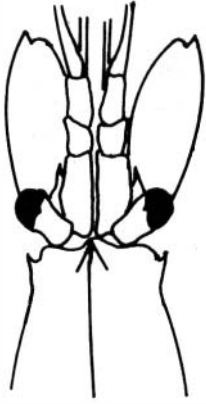
**A**

**5 mm**



**B**

**10 mm**



**C**

**10 mm**

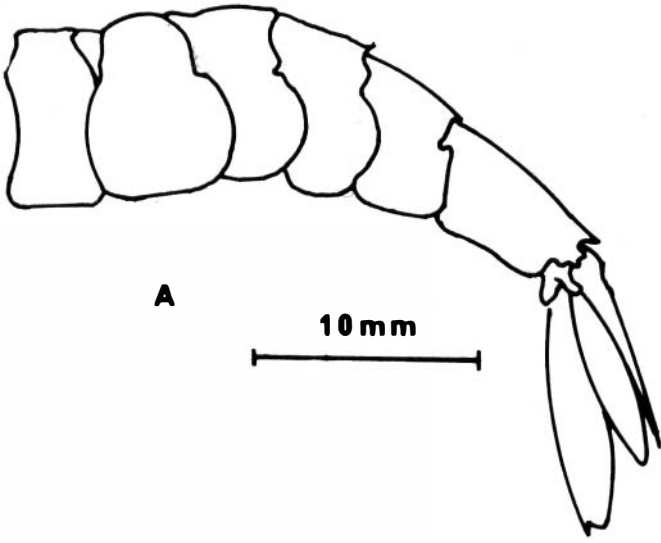


**1**

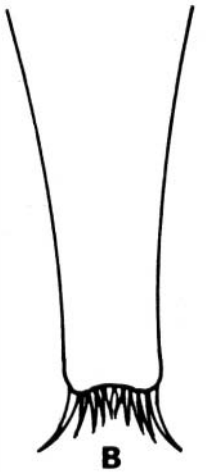
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Fig. 2. *Pasiphaea emarginata* Rathbun

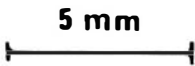
- A. Lateral view of abdominal segments and telson.
- B. Dorsal view of telson showing five pairs of spinules.
- C. Palm and finger of 1st pereiopod.
- D. Merus of 1st pereiopod.
- E. Palm and finger of 2nd pereiopod.
- F. Merus of 2nd pereiopod.



C



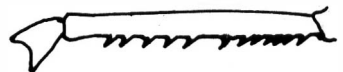
B



D



E



F

