

**ALPHEUS INCA: A NEW SNAPPING SHRIMP
(CARIDEA: ALPHEIDAE) FROM WESTERN
SOUTH AMERICA**

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A B S T R A C T

Alpheus inca, new species, is described from shallow rocky subtidal zones of Chile and Peru. This member of the *macrocheles* species group can be recognized by the locking notch of the dactyl in the palm of the major chela. The species lacks spines on the distal margins of the merus of the third pereopods.

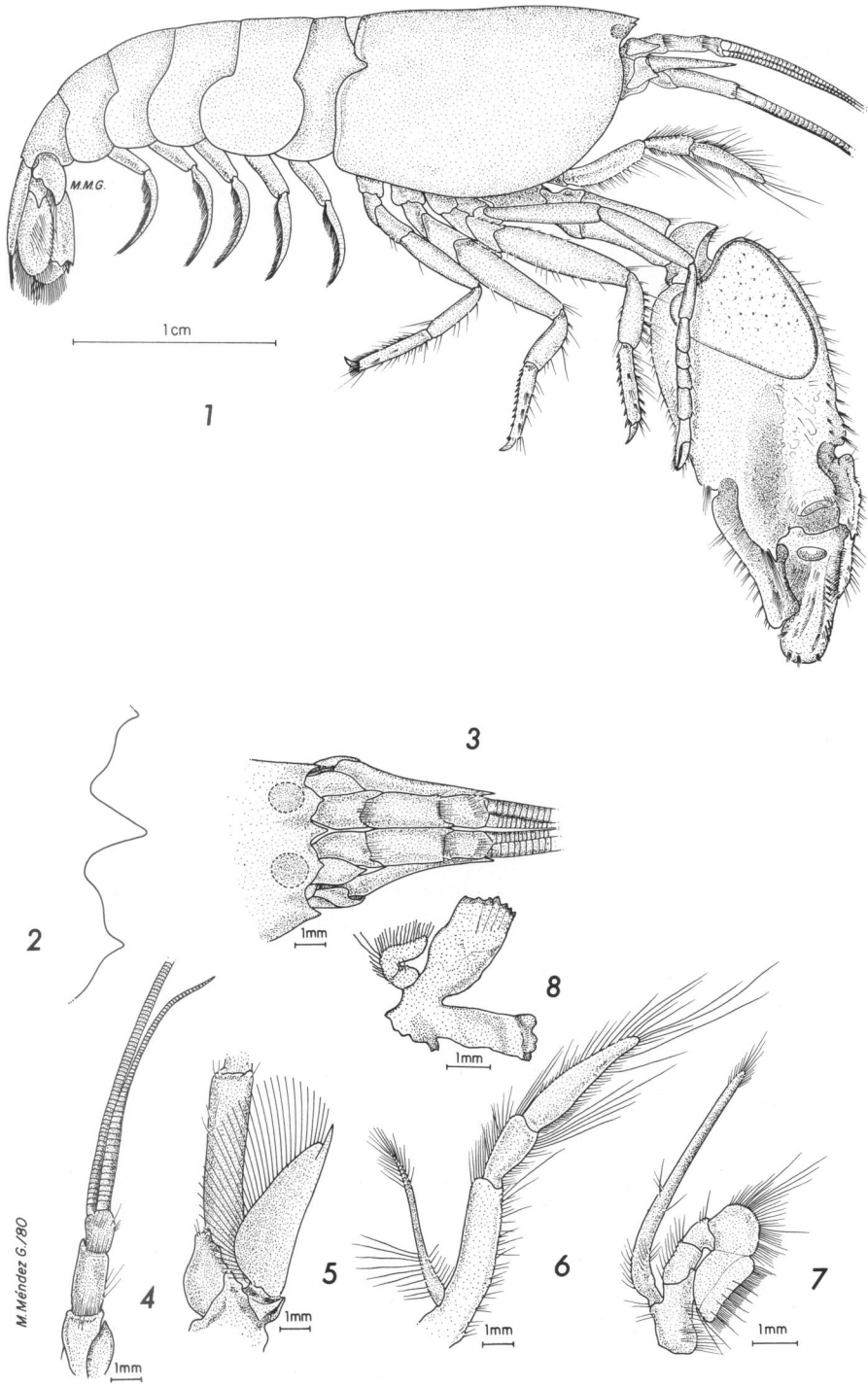
The shallow subtidal rocky areas of southwestern South America contain a wide variety of invertebrates, many of them poorly studied. Collections by the Peruvian Coastal Islands Investigations, sponsored by the Los Angeles County Museum of Natural History, and the Instituto del Mar del Perú have yielded many decapod crustaceans. Additional specimens have been found in unsorted samples at the Allan Hancock Foundation and the U.S. National Museum, and others have been donated by Oscar Zuñiga Romero of the Universidad de Chile, Antofagasta. This paper describes *Alpheus inca*, one of the largest snapping shrimps of western South America.

***Alpheus inca*, new species**

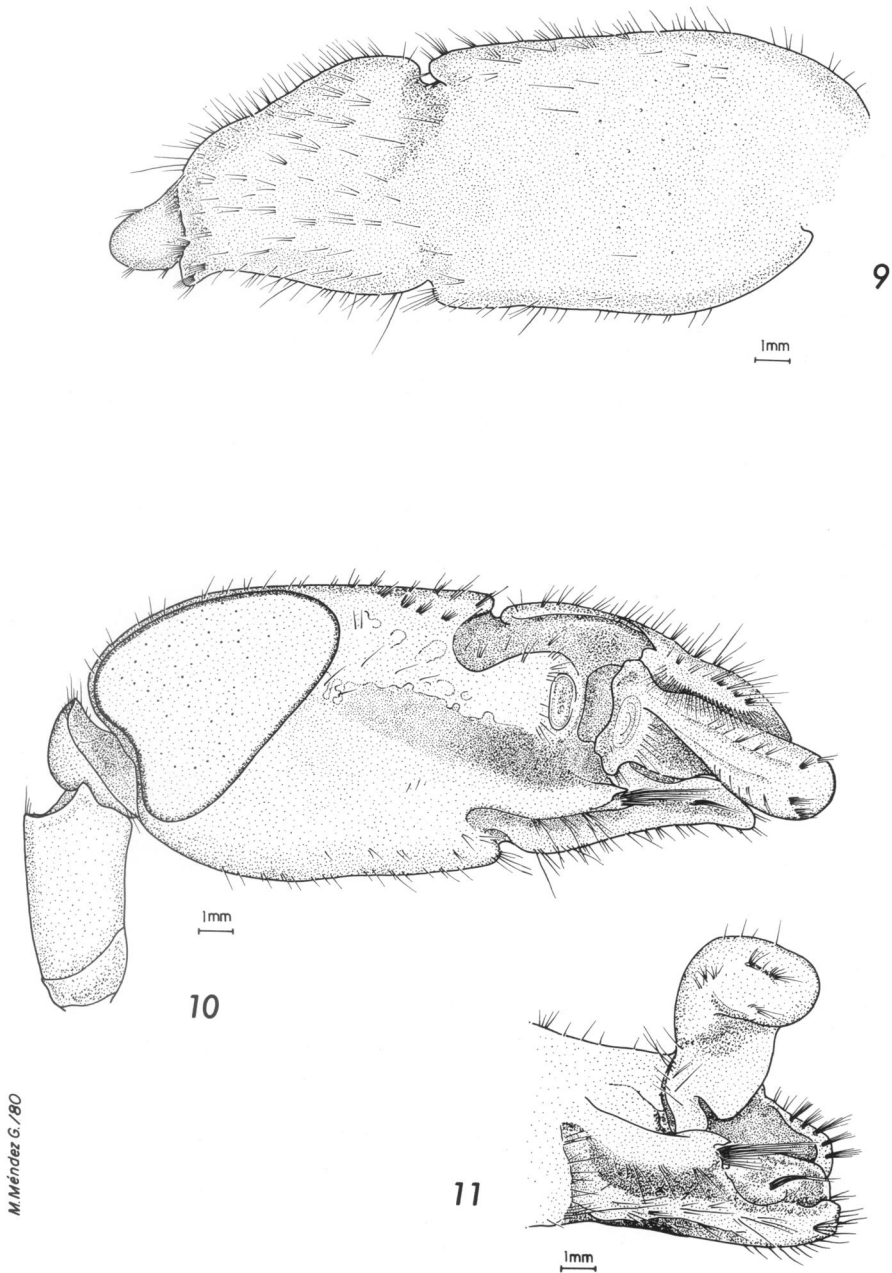
Rostrum short, triangular, barely reaching beyond spines of orbital hoods. Rostrum and rostral base rounded, not carinate. Orbital hoods not inflated. Orbito-rostral furrows slight, shallow and broad. Orbital hoods armed with small median teeth. Margin between base of rostrum and orbital teeth sinuous, slightly concave to convex.

Lateral spine of stylocerite acute, reaching beyond rostrum nearly to end of first segment of antennular peduncle. Second segment of antennular peduncle about 1.6 times length of visible portion of first segment, twice length of third segment. Lateral spine of basicerite short, not reaching end of stylocerite. Scaphocerite with strong lateral spine, this spine exceeding squamous portion by about 0.12 of total length of scale, reaching beyond antennular peduncle. Carpocerite longer than scaphocerite.

Large chela 2.5 times as long as broad, laterally compressed and distally sculptured. Superior crest acute distally, terminating in strong acute tooth above dactylar articulation, merging proximally with superior edge of chela. Transverse groove deep, with proximal margin slightly overhanging, distally rounded. Superior groove deep. Plaque crest pronounced, with rounded ridge, proximally merging with superior margin of palm. Palmar groove deep, well-defined. Inferior crest arising in middle of palm, terminating distally in tooth below dactylar articulation, as large as superior tooth. Inferior depression marked, shoulder strong and rounded. Distal end of immovable finger emarginate, forming locking notch which receives dactylus. Dactylus about 0.25 length of entire chela, with bulbous tip, rotated to close almost diagonally across end of chela. Chela moderately setose, with numerous groups of setae on superior and inferior margins and around edge of fingers. Carpus less than twice as broad as long, without spines, with superior and inferior margins slightly produced and rounded. Merus



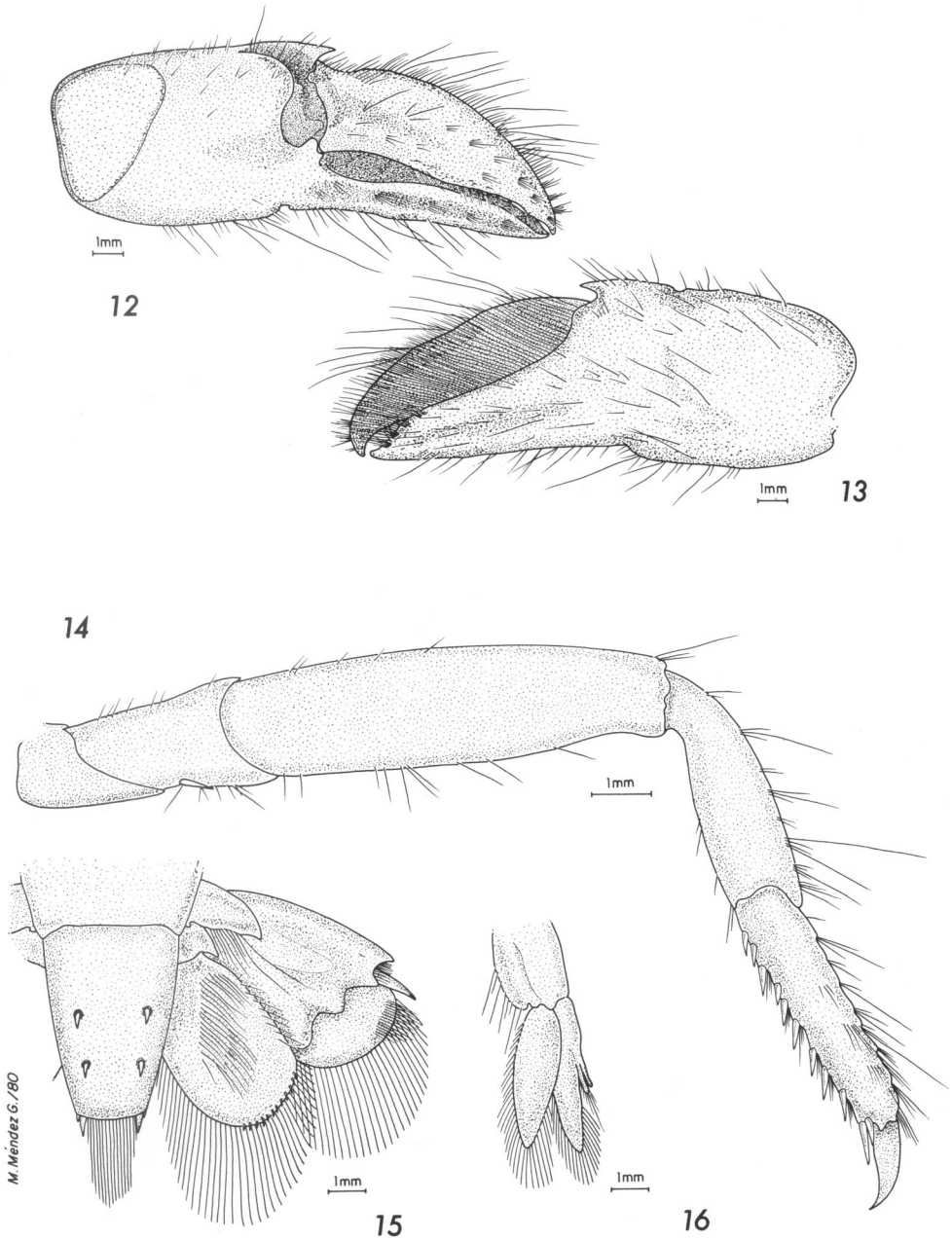
Figs. 1-8 Male, paratype. Total length 36.6 mm. Punta Brava, Peru. 1, Lateral view; 2, Rostrum and orbital hoods; 3, Anterior part of body in dorsal view; 4, Antennule; 5, Scaphocerite and antenna; 6, Third maxilliped; 7, Second maxilliped; 8, Mandible.



Figs. 9–11. Male, paratype. 9, Large chela, inner face; 10, Large cheliped, outer face; 11, Large chela, dactylus.

twice as long as broad, with rounded distal tooth, superior and inferior margins rounded.

Small chela heavy, three times as long as wide. Palm distally with superior crest well-developed, ending as projecting tooth flanking articulation of dactylus.



Figs. 12–16. Male, paratype. 12, Small chela, outer face; 13, Small chela, inner face; 14, Third pereiopod; 15, Telson and uropods; 16, Second pleopod.

Fingers about equal in length to palm, distally strongly hooked. Carpus with flat tooth on superior distal margin. Merus more than twice as long as wide.

Carpal articles of second pereiopods with ratio 10:6:3:4:6.

Dactyl of third pereiopod simple. Propodus with seven or eight sets of strong

movable spines along inferior margin. Carpus more than three times as long as wide, with superior margin ending distally in acute dentate projection. Merus about four times as long as wide, without teeth. Ischium with movable spine.

Material Examined.—Holotype: female. Bahía de los Mejillones, Chile (22.8°S, 70.5°W). 1976. Oscar Zuñiga Romero, collector. Paratype, female from same location and date. Allan Hancock Foundation type number 767. Paratypes: three males and two females. Punta Brava, Islas San Gallan, Peru (13°50'S, 76°26'W), 4–6 m (SCUBA diving). 6 August 1976. V. Valdivieso, J. Zeballos, collectors. Instituto del Mar del Perú, Callao. Paratype: female, ovigerous. Lobos de Afuera, Peru (6°55'40"S, 80°43'50"W), shore. 14 February 1938. R.V. *Velero III* station 844-38. U.S. National Museum.

Other Material.—Female. Lobos de Afuera, Peru (6°57'04"S, 80°42'21"W). 6–8 m. 20 January 1974. Peruvian Coastal Islands Investigations station PH28-3. Allan Hancock Foundation.—Male. Punta Ripie, Pisco, Peru (13°45'S, 76°15'W). 5 m. (SCUBA diving). 21 November 1979. V. Valdivieso, collector. Instituto del Mar del Perú, Callao.—21 specimens, both sexes. Lobos de Afuera, Peru. Shore. 17 January 1935. R.V. *Velero III* station 391-35. Also 29 other specimens from Lobos de Afuera, Peru (station 844-38). U.S. National Museum.

Measurements in mm.—Holotype: total length 44.7, carapace 16.6, abdomen 21.0, telson 7.1, large chela 24.9. Total lengths of paratypes: 44.8, 45.9, 48.5, 36.6, 48.0, 42.0, 47.4.

Remarks.—*Alpheus inca* belongs to the *macrocheles* group of Crosnier and Forest (1966: 218). This group includes species of *Alpheus* having spines on the ocular hoods and the larger chela more or less distorted with the margins grooved and notched and with the condylian crests very prominent and sharp. Of the species belonging to this group, it is most closely related to the eastern Atlantic shrimp *A. macrocheles* (Hailstone) and the widespread species *A. crockeri* Armstrong. However, in *A. inca*, the finger of the major chela fits into a deep socket in the palm. Seen from the front, the finger rests in a deep notch rather than lying flush against the palm, as in *A. macrocheles*. The orbital spines of *A. inca* are less prominent than those of *A. macrocheles*. In *A. inca*, only the tip of the dactyl is visible from the external side, rather than most of the dactyl, as in *A. crockeri*. *Alpheus inca* has much stouter appendages than *A. crockeri*. *Alpheus crockeri* lacks the prominent notch found on the dorsal surface of the major chela of *A. inca*.

Alpheus inca is the only member of its species group known from Peru. Holthuis (1952: 48–49) reported on the single specimen of *A. dentipes* from Chile.

In Peru *A. inca* was taken on a bottom of large rocks surrounded by muddy sand. Large banks of the edible mussel *Aulacomya ater* (Molina) lived on the rocks. Other decapods in the area were the snapping shrimps *Alpheus chilensis* Coutière and *Synalpheus spinifrons* (H. Milne-Edwards), the porcelain crab *Pachycheles crinimanus* Haig, the xanthid crab *Pilumnoides perlatus* (Poëppig), the pea crab *Pinnixa transversalis* (Milne-Edwards and Lucas), and the hermit crab *Pagurus edwardsi* (Dana).

Etymology.—The specific epithet “Inca” is to be considered as a noun in apposition to the generic name. It refers to the emperors of Peru before the Spanish conquest.

ACKNOWLEDGEMENTS

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