

Gulf Research Reports

Volume 10 | Issue 1

January 1998

An Illustrated Record and Range Extension of *Caligus chelifera* (Copepoda, Siphonostomatoida) in the Gulf of Mexico

E. Suarez-Morales

El Colegio de la Frontera Sur, Mexico

I. H. Kim

Kangreung National University, South Korea

I. Lopez-Salgado

DOI: 10.18785/grr.1001.06

Follow this and additional works at: <http://aquila.usm.edu/gcr>



Part of the [Marine Biology Commons](#)

Recommended Citation

Suarez-Morales, E., I. Kim and I. Lopez-Salgado. 1998. An Illustrated Record and Range Extension of *Caligus chelifera* (Copepoda, Siphonostomatoida) in the Gulf of Mexico. *Gulf Research Reports* 10 (1): 57-60.

Retrieved from <http://aquila.usm.edu/gcr/vol10/iss1/6>

This Article is brought to you for free and open access by The Aquila Digital Community. It has been accepted for inclusion in Gulf and Caribbean Research by an authorized editor of The Aquila Digital Community. For more information, please contact Joshua.Cromwell@usm.edu.

AN ILLUSTRATED RECORD AND RANGE EXTENSION OF *CALIGUS CHELIFER* (COPEPODA, SIPHONOSTOMATOIDA) IN THE GULF OF MEXICO

E. Suárez-Morales, I.-H. Kim¹ and I. López-Salgado²

El Colegio de la Frontera Sur (ECOSUR). A.P. 424. Chetumal, Quintana Roo 77000. Mexico.

¹Dept. of Biology, Kangreung National University. Kangreung 210-702. South Korea.

²Est. de Inv. Oceanográfica Tampico. Secr. de Marina. Alvaro Obregón s/n. Col. Emilio Carranza. Cd. Madero, Tamaulipas 89540. Mexico.

ABSTRACT A male specimen of the copepod *Caligus chelifer* Wilson, 1905, was collected during a plankton survey carried out during February 1994 off the Mexican coasts of the eastern Gulf of Mexico (Tamaulipas state). This is the first record of this species in Mexican waters and south of the 25°N in the Northwestern Atlantic. Taxonomic illustrations of the specimen are provided.

INTRODUCTION

The genus *Caligus* comprises about 200 species and is one of the most widely distributed groups of parasitic copepods in the world seas. They parasitize teleosts, such as mackerels and tuna, and several species of elasmobranchs (Kabata, 1979; Cressey and Cressey 1980).

In the Gulf of Mexico and western Caribbean Sea, 26 species of *Caligus* have been recognized (Cressey 1991). Most of these specimens have been collected directly from the host; however, it is not uncommon to find caligids and their close allies captured by plankton nets as they are relatively loosely attached to their host surfaces (Kabata 1979).

From a plankton survey carried out at the central-westernmost portion of the Gulf of Mexico, a single male of a *Caligus* species previously unreported in Mexican waters was collected. Although the host fish remains unknown, we present the record along with taxonomic illustrations of the specimen.

MATERIAL AND METHODS

Zooplankton from 47 stations were collected from 16-21 February, 1994, during the oceanographic cruise EMOAPII (Estudio de las Modificaciones Oceanográficas y Ambientales Producidas por la Influencia del Río Pánuco), carried out by the Estación de Investigación Oceanográfica de Tampico, on board the oceanographic vessel "Antares". Samples were taken between the southern portion of the Tamaulipas state coastline and the northern coast of Veracruz state, off the Laguna de Tamiahua (21°45'0.72" and 22°49'18" N; 97°2'15'0.72" and 97°48'4.32" W). The specimen of *Caligus* was sorted from a sample collected at station 10 (22°23.43'N; 97°41.00'), on February 18 at 06:52 h. It was then processed for identification. All the taxonomically relevant structures were illustrated. The specimen is deposited in Dr. Kim's collection at the Kangreung National University, South Korea.

RESULTS AND DISCUSSION

The taxonomic analysis of the specimen resulted in the identification of a male *Caligus chelifer* Wilson 1905, which was illustrated showing the main taxonomic features of the genus (Figures 1 and 2). The male of this species can be readily distinguished from the other species of *Caligus* by the slender, tapering urosome (Figure 1) and the presence, on the corpus of the maxilliped, of a strong protrusion which gives the appendage a chelate appearance when the claw is set in resting position (Wilson 1905; Kabata 1972; Cressey and Cressey 1980) (see Figure 1H).

The specimen had a total length of 4.15 mm, and the cephalothorax is 2.38 mm long and 1.63 mm wide. Genital complex measured 0.74 mm long and 0.53 mm wide. Our specimen seems to be a small one when comparing it with the measurements reported by Wilson (1905) for the type specimen (total length: 4.93 mm, cephalothorax length: 3 mm, width: 2.1 mm, genital complex: 1.0 mm) and for additional, larger specimens (6-6.5 mm, 3 mm, 2.3 mm, 1.6 mm, respectively) (Wilson 1905; Cressey 1991).

Caligus chelifer has a 2-segmented exopod of leg 4 (Figure 2E); its first segment bears a spine on outer distal corner; the distal segment has a spine on midlength of outer margin, plus 3 large terminal spines. Of all the species recorded for the Gulf of Mexico and the Caribbean Sea (Wilson 1936; Yamaguti 1963; Cressey 1991), half of them show this leg 4 segmentation and armament (*C. afurcatus* Wilson 1913; *C. asperimanus* Pearse 1951; *C. berychis* Wilson 1936; *C. bonito* Wilson 1905; *C. epinephali* Yamaguti 1936; *C. haemulonis* Krøyer 1863; *C. mutabilis* Wilson 1905; *C. ocyurus* Cressey 1991; *C. praetextus* Bere 1936; *C. productus* Dana 1852; *C. rufimaculatus* Wilson 1905; *C. suffuscus* Wilson 1913; *C. xystercus* Cressey 1991). Only three of these (*C. mutabilis*, *C. ocyurus* and *C. praetextus*) have the genital complex and caudal rami longer than wide, as in *C. chelifer*. Particularly, *C. chelifer* resembles *C. praetextus* as both

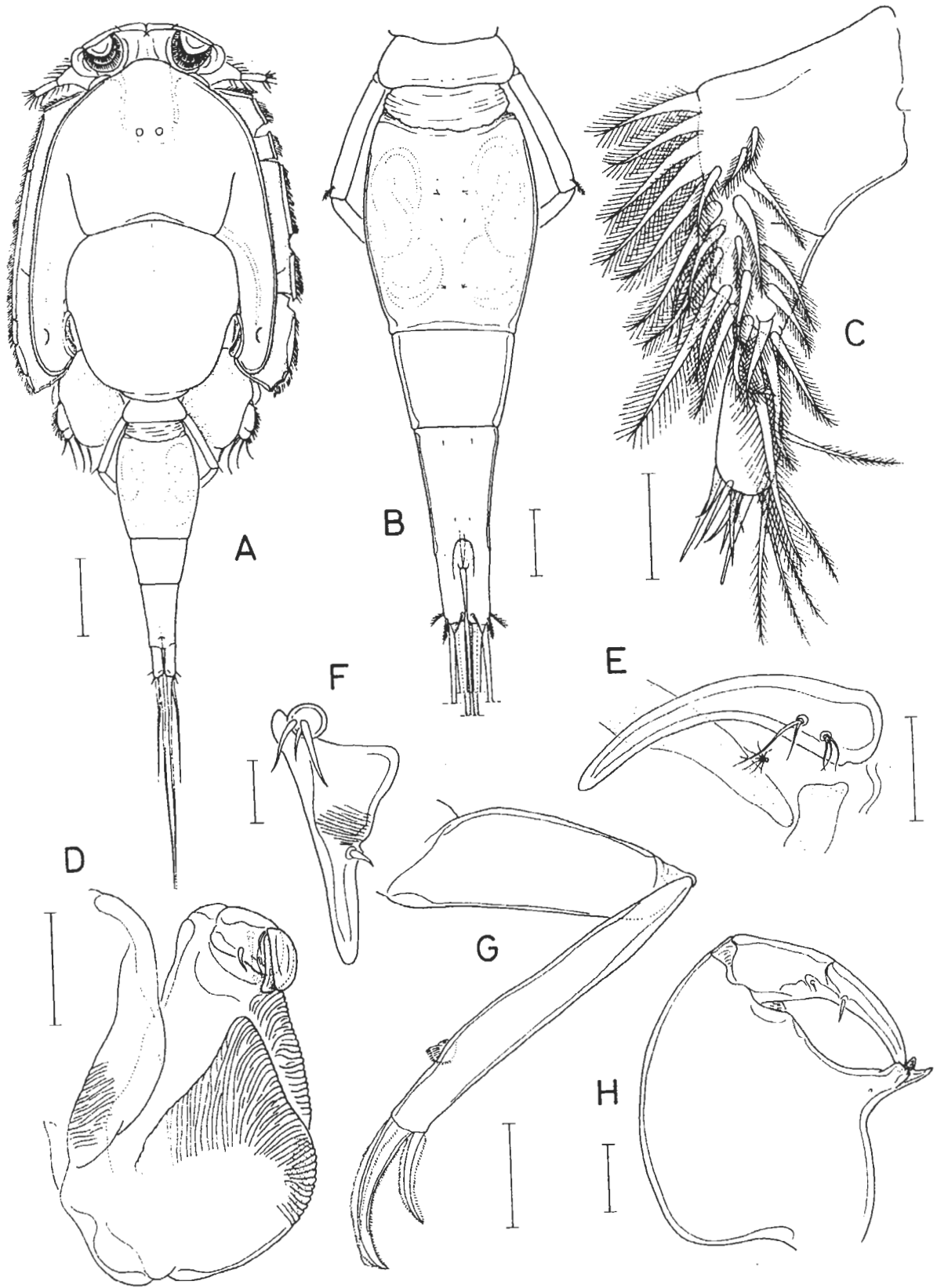


Figure 1. *Caligus chelifer*, adult male: A. Habitus, dorsal; B. urosome, dorsal; C. antennule; D. antenna; E. postantennary process; F. maxillule; G. maxilla; H. maxilliped. Scales: A= 0.5mm; B= 0.2mm; C-E,G,H= 0.1 mm; F=0.05 mm.

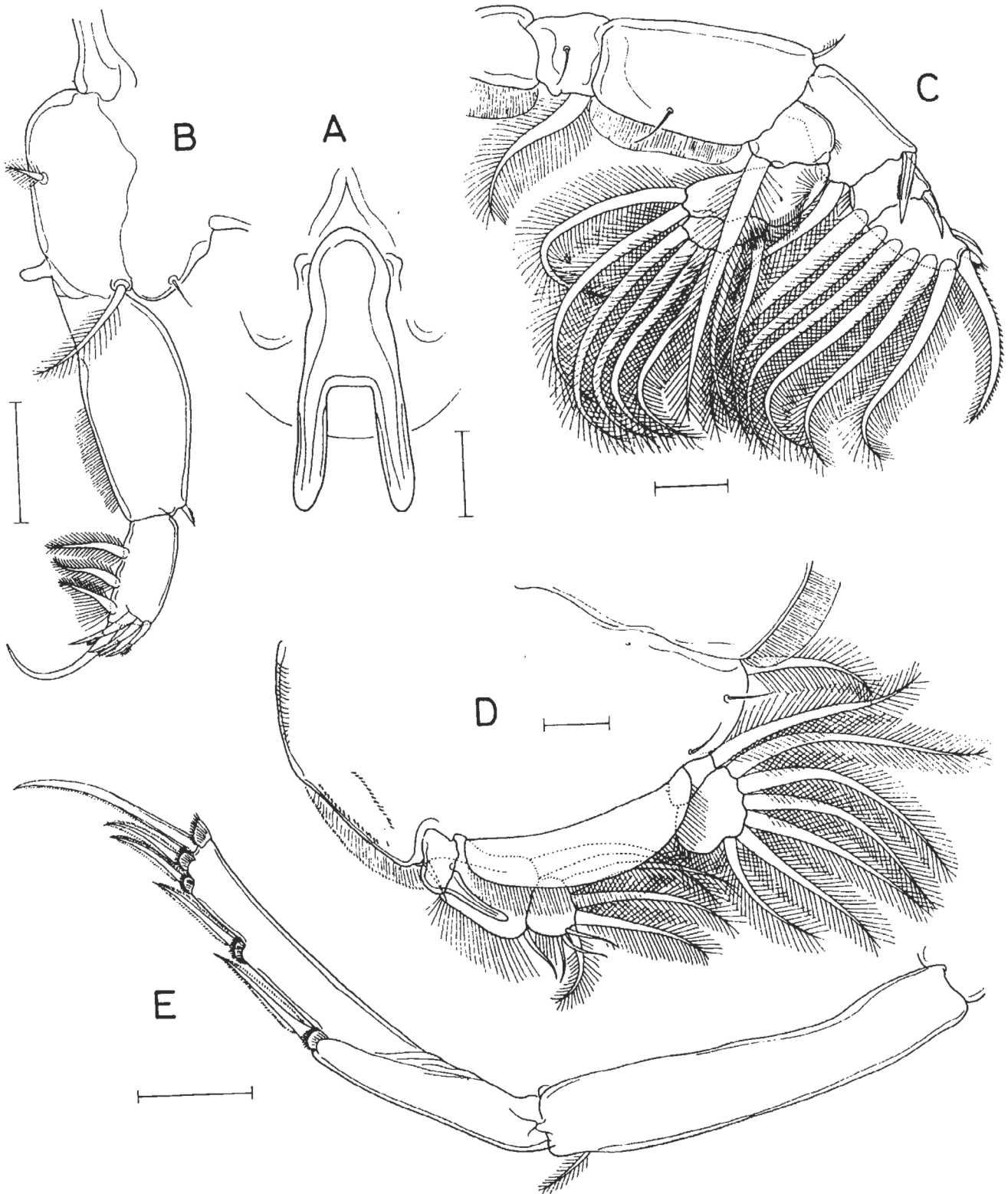


Figure 2. *Caligus chelifer*, adult male: A. sternal furca; B. leg 1; C. leg 2; D. leg 3; E. leg 4. Scales A-E= 0.1 mm.

bear a triangular genital complex, with a distinctly slender and inward directed caudal rami. The main differences between these two species are found in the shape of the cephalothorax, which is narrower in *C. chelififer* (the 3 setae on exopod inner margin are relatively shorter in *C. chelififer*), and in the spine on the first exopodal segment of leg 3, which is quite broad in *C. praetextus*. *Caligus productus* is also related to *C. chelififer*; both share a 4-segmented leg 4 with three apical setae (in *C. chelififer* the first one is twice as long as the other two, while in *C. productus* the first seta is only slightly longer). Neither of these species show lateral processes of sternal furca, and the fourth exopodal seta of leg 1 terminal segment is much longer than the remaining three (in *C. chelififer* the third seta is relatively longer than in *C. productus*). Both species differ in the structure of the maxilliped and the marginal ornamentation of leg 2 endopod. Although the host of our specimen of *C. chelififer* remains unknown, this species has been collected from three fish species that occur in the Gulf of Mexico (Hoese and Moore 1977): the Atlantic cutlassfish (*Trichiurus lepturus* Linnaeus 1758), a menhaden (*Brevoortia gunteri*

Hildebrand 1948) and a swordfish (*Xiphias gladius* Linnaeus 1758) (Wilson 1905). Other records are from off Miami, and from *Brevoortia tyrannus* (Latrobe 1802), collected off Port Aransas, Texas (Cressey 1991). *Caligus chelififer* has not been reported south of 25°N. The present record represents the first record of this species in Mexican waters and allows a southward extension of its known latitudinal distribution into the tropical zone of the Northwestern Atlantic.

ACKNOWLEDGMENTS

Dr. Ju-Shey Ho kindly supported our work and made suggestions to improve this manuscript. We also thank the officers of the Estación de Investigación Oceanográfica de Tampico, of the Mexican Secretaría de Marina for allowing us to study the zooplankton samples from the EMOAPII cruise.

LITERATURE CITED

- Cressey, R. and H.B. Cressey. 1980. Parasitic Copepoda of mackerel- and tuna-like fishes (Scombridae) of the world. *Smithsonian Contributions in Zoology* 311:1-186.
- Cressey, R. 1991. Parasitic copepods from the Gulf of Mexico and Caribbean Sea. III. *Caligus*. *Smithsonian Contributions in Zoology* 497:1-53.
- Hoese, H.D. and R.H. Moore. 1977. *Fishes of the Gulf of Mexico. Texas, Louisiana, and adjacent waters.* Texas A&M University Press, College Station. 327 p.
- Kabata, Z. 1972. *Caligus chelififer* Wilson 1905 (Copepoda: Caligidae), with a description of the male. *Proceedings of the Biological Society of Washington* 85:389-398.
- Kabata, Z. 1979. *Parasitic Copepoda of British fishes.* The Ray Society, London. 468 p.
- Wilson, C.B. 1905. North American parasitic copepods belonging to the family Caligidae. Part I. The Caliginac. *Proceedings of the United States National Museum* 31:479-672.
- Wilson, C.B. 1936. Two new parasitic copepods from Cuban fisheries. *Memorias de la Sociedad Cubana de Historia Natural "Felipe Poey"* 10:107-112.
- Yamaguti, S. 1963. *Parasitic Copepoda and Branchiura of fishes.* Interscience Publishers, N.Y. 1104 p.