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Distribution of *AcanthePHYra brevicarinata* Hanamura, 1984 and *A. brevirostris* Smith, 1885 (Crustacea: Decapoda: Caridea: AcanthePHYridae), in Pacific Mexico

MICHEL E. HENDRICKX^{1,3} & DANIELA RÍOS-ELÓSEGUI²

¹Laboratorio de Invertebrados Bentónicos, Unidad Académica Mazatlán Instituto de Ciencias del Mar y Limnología, Universidad Nacional Autónoma de México, P.O. Box 811, Mazatlán Sinaloa 82000, Mexico.

²Posgrado en Ciencias del Mar y Limnología, Unidad Académica Mazatlán Instituto de Ciencias del Mar y Limnología, Universidad Nacional Autónoma de México, P.O. Box 811, Mazatlán Sinaloa 82000, Mexico. E-mail: dgrios@ola.icmyl.unam.mx

³Corresponding author. E-mail: michel@ola.icmyl.unam.mx

Abstract

Two species of the AcanthePHYridae, *AcanthePHYra brevicarinata* Hanamura, 1984, and *A. brevirostris* Smith, 1885, are reported for the Pacific coast of Mexico. The number of known localities for *A. brevicarinata*, a species endemic to the eastern Pacific, is increased from 24 to 70 and the number of specimens on records from 160 to 363. New distribution limits are provided for this species, from 25°02'N; 112°54'W to 16°58'N; 100°55'W, including the central and northern Gulf of California from 28°01'N; 112°17'W southwards. Based on previous information related to its capture and the morphology of its first larval stage, *A. brevicarinata* is considered to be part of the nektobenthic fauna. New records for *A. brevirostris* confirm its presence within the Gulf of California.

Key words: *AcanthePHYra brevicarinata*, *A. brevirostris*, distribution, Pacific Mexico

Introduction

With about 3438 species (De Grave & Fransen, 2011), the Infraorder Caridea constitutes one of the most specious groups of decapod crustaceans. It contains benthic and pelagic species, some of which are known to present nektobenthic behaviour (Pequegnat & Wicksten, 2006; Follesa et al., 2013). Some families are exclusively benthic (e.g., Palaemonidae, Glyphocrangonidae), others are almost exclusively pelagic (e.g., Oplophoridae, Pasiphaeidae), and a few include species inhabiting both realms (e.g., Pandalidae) (Chace, 1986; Hendrickx & Wicksten, 1989; Poore, 2004; Wicksten, 2012).

The genus *AcanthePHYra* A. Milne-Edwards, 1881, contains 27 valid species (De Grave & Fransen, 2011) of which 12 have been recorded in the eastern Pacific: *A. brevicarinata* Hanamura, 1984, *A. brevirostris* Smith, 1885, *A. carinata* Spence Bate, 1888, *A. chacei* Krygier & Forss, 1981, *A. cucullata* Faxon 1893, *A. curtirostris* Wood-Mason 1891, *A. eximia* Smith, 1884, *A. faxoni* Calman 1939, *A. pelagica* (Risso, 1816), *A. prionota* Foxton 1971, *A. quadrispinosa* Kemp, 1939, and *A. trispinosa* Kemp, 1939 (Hendrickx & Estrada-Navarrete, 1989). Some of these species are typically oceanic and are not found close to shore. Pelagic and benthic shrimps of Pacific Mexico were reviewed by Hendrickx & Estrada-Navarrete (1996) and Hendrickx (1996). They concluded that five species of *AcanthePHYra*, all presumably pelagic, had been previously recorded from off the Pacific coast of Mexico: *A. brevicarinata*, *A. brevirostris*, *A. cucullata*, *A. curtirostris*, and *A. prionota*.

More recently, a small series of additional records have been published for these species, including records for a) *A. brevicarinata* in the Gulf of California and off Bahía Magdalena, west coast of Baja California, b) *A. curtirostris* in the Panama basin and c) *A. cf. brevirostris* in the SW Gulf of California (Hendrickx & Wicksten, 2004; Hendrickx, 2013). Guzman (2008) listed nine species of *AcanthePHYra* off the coast of Chile, including three species occurring in Pacific Mexico: *A. brevirostris*, *A. cucullata*, and *A. curtirostris*. Wicksten (2002, 2012)

Discussion

The present contribution provides a very large number of specimens (203) of *A. brevicarinata*. Comparatively, Hanamura (1984) included 160 specimens in the contribution in which the species was described, but only from two localities. It also increases the number of localities where this species has been reported to 70 (24 previous, 46 new), a significant increase of 92 %, and provides new distribution records from off the west coast of the Baja California Peninsula, within the Gulf of California, and along the SW coast of Mexico, thus occurring in the Californian, the Sea of Cortés, and the Mexican zoogeographic provinces. Based on these records, it is now established that *A. brevicarinata* features a very wide geographic range in the eastern Pacific. Hanamura (1984) suggested that the range of *A. brevicarinata* could probably extend farther south to Panama. Present records reinforce this suggestion. It should be emphasized, however, that environmental conditions in deep water are more stable than in shallow water and that the geographic distribution of *A. brevicarinata* is probably related to the direction and intensity of deep-water currents in the region rather than to the current patterns and temperature of surface water masses.

Hendrickx (2003) and Hendrickx & Wicksten (2004) noted that *A. brevicarinata* was occasionally very abundant in benthic samples taken within the Gulf of California. They also cited one record of 11 specimens collected with a deep diving dredge off Mazatlán in the SW Gulf of California. While referring to the abundant material captured in the southern Gulf of California and reported by Hendrickx (2003), Hendrickx & Wicksten (2004) suggested that *A. brevicarinata* lives on or close to the bottom. The first larvae of *A. brevicarinata* was described by Hendrickx & García-Guerrero (2007) who noted that appendages of these larvae are devoid of long, natatory setae, thus indicating little or no swimming capability and a benthopelagic habitat of the larval stage.

Although many species of *Acantheephyra* are considered to be pelagic, previous reports suggest that at least two species primarily live on or near the sea floor. Pequegnat & Wicksten (2006) considered *A. eximia* and *A. armata*. A. Milne-Edwards, 1881, as primary benthic species, taken in benthic sampling gear, not midwater trawls, thus following the opinion of Chace (1986) in this respect. In their study of the ovary development of *Acantheephyra eximia*, Follesa et al. (2013) also considered this species as nektobenthic. Gates et al. (2012) reported the presence of *A. eximia* in the stomach contain of demersal fishes and classified the shrimp as "suprabenthic". Like *A. eximia* and *A. armata*, *A. brevicarinata* is a large (CL >28 mm), robust (carapace well calcified) and heavy shrimp, almost exclusively taken in benthic gear. We consider that it also belongs to the nektobenthic community rather than to the pelagic community.

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