FIRST WESTERN MEXICO RECORD OF THE DEEP-WATER SQUAT LOBSTER *MUNIDOPSIS HENDERSONIANA* FAXON, 1893 (CRUSTACEA: DECAPODA: GALATHEOIDEA: MUNIDOPSIDAE).

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ABSTRACT: The deep-water squat lobster *Munidopsis hendersoniana* FAXON, 1893 is reported for the third time since its original description. Previously known only from off Panama, in depths of 915-1867 m ("Albatross" and "Galathea" material), it was collected off western Mexico, 11°28' degrees of latitude north to its previous distribution range. Environmental data for this rare species are summarized.

Key words. Deep-sea, *Munidopsis*, eastern Pacific.

INTRODUCTION

Squat lobsters represent one of the most diverse groups of deep-water decapod crustaceans worldwide. Recent review by SCHNABEL *et al*. (2011) indicate that there are as many as 1042 species in all oceanic regions. Of these, a sizable proportion (about 12%) is known but not yet described. Comparatively with other large geographic regions, the eastern Pacific is the less rich with only 118 species and only overpasses smaller regions like the Caribbean Sea (90 species) and the Mediterranean Sea (17 species). The western Pacific alone accounts for as many as 734 species of squat lobsters, ca 71% of all known species (SCHNABEL *et al*. 2011). Low number of species in the eastern Pacific is probably partly related to the presence of a wide, intensive Oxygen Minimum Zone (OMZ) that strongly reduces the area where aerobic fauna can survive without specific adaptations (HELLY & LEVIN 2004; HENDRICKX & SERRANO 2010).

Depth distribution varies greatly among squat lobsters, from shallow water to over 5000 m. Shallow water species are associated with many different habitats (e.g., coral reefs, sandy, mixed and muddy bottom) while deeper species are usually associated with soft sediments or with hydrothermal vents and cold seeps (LOVRICH & THIEL 2011).

Recent studies of the deep-water invertebrate fauna in western Mexico indicate that species of *Munidopsis* represent the largest group of decapod crustaceans community, particularly below the OMZ (HENDRICKX 2012). Some species (e.g., *M. depressa* FAXON, 1893; *M. hystrix* FAXON, 1893) have shown to be particularly abundant in this area. During one survey off the SW coast of Mexico, a specimen of a rare species of this genus was collected and is reported herein.

METHODS

The material reported herein was collected during the TALUD XII cruise aboard the R/V "El Puma" with a 2.5 m wide benthic sledge. Environmental parameters associated with the capture were obtained from a CTD equipped with an oxygen sensor deployed about 20 m above bottom. Granulometry of the sediment was obtained following the method described by FOLK (1965) and concentration of organic carbon was determined using the method described by LORING & RANTALA (1992). The unique specimen is kept in the Regional Collection of Marine Invertebrates (ICML-EMU) in Mazatlán, Mexico. Abbreviation used in this report is: CL, carapace length (tip of rostrum to posterior margin).

RESULTS

Galatheoidea Samouelle, 1819

Munidopsidae Ortmann, 1898

Munidopsis Whiteaves, 1874

Munidopsis hendersoniana Faxon, 1893

(Fig. 1)

Munidopsis hendersoniana Faxon, 1983: 190; 1895: 100, pl. 24, fig. 2, 2a, 2b, 2c.- Wicksten 1989: 315 (list).- Hendrickx & Harvey 1999: 376 (list).- Baba 2005: 152, fig. 67, 289.- Baba *et al*. 2008, 144 (list).

Or. (*munidopsis*) *hendersonianus*.- A. Milne-Edwards & Bouvier 1894: 286

Orophorhynchus hendersonianus.- A. Milne-Edwards & Bouvier 1894: 287 (key).

Diagnosis. Body and appendages with short, plumose setae; carapace flat, without spines; lateral margin strongly crested; rostrum without lateral spines, less that half carapace length, horizontal, carinate in midline; anterolateral spine broad, short, obtuse; front margin oblique; antennal spine well developed; sternite 4 with one acute anterolateral spine on each side; abdominal somites without spines; eyes with a wide, sharp spine reaching midlength of rostrum, spine continuous with eyestalk, dorsally dividing cornea; basal article of antenna with 2 strong distal spines, a short distomesial spine; chelipeds short; pereiopods 2 overeaching pereiopods 1; merus of pereiopods 2-4 with spines (adapted from Baba 2005).

Material examined: TALUD XII, St. 28 (18°50'19"N, 104°34'14"W), 1 male (CL 15.2 mm), April 2, 2008, R/V "El Puma", 1101-1106 m (ICML-EMU 9578).

Distribution: Type locality Gulf of Panama, "Albatross" St. 3393 (07°15'N, 79°36'W), 1867 m depth, March 10, 1891. "Galathea", St. 739 (7°22'N, 79°32'W) and St. 745 (7°15'N, 79°25'W), Gulf of Panama, May 15-16, 1952, 915-975 m depth (Baba 2005). Off the SW coast of Mexico (present study).

Ecology: Syntypes collected on green mud; bottom temperature 2.7°C (36.8°F) (Faxon 1895). Some specimens have been found in holes of sunken tree trunk (Baba 2005). Material examined: dissolved oxygen 0.27



Fig. 1. *Munidopsis hendersoniana* Faxon, 1983, male (ICML-EMU 9578) in dorsal view.

ml/l; water temperature, 4.11°C; salinity, 34.53; sediments composition: sand 63.5%, silt 17.8%, clays 18.6%, with 2.13% of C_{org}. The depth of the TALUD station (1101-1106 m) is close to the depth range of the Panama material collected by the "Galathea" (915-975 m).

Remarks: According to Baba *et al*. (2008), the syntypes examined by Faxon (1893, 1895) (3 males and 1 female) could not be located. Before present contribution, material available for this species consisted only of the "Galathea" material reported by Baba (2005): 2 males, 2 females and 3 ovigerous females (Zoological Museum, Copenhagen). With this new record, the geographic distribution of this species is extended to the north by 11°28' degrees of latitude (ca 3000 km to the north).

The male specimen examined fit well with the diagnostic characters and illustrations presented by Baba (2005: 152, Fig. 67).

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REFERENCES

Baba, K. 2005. Deep-sea Chirostylid and Galatheid Crustaceans (Decapoda: Anomura) from the Indo-Pacific, with a list of species. Scientific Results of the Danish Deep-Sea Expedition Round the World 1950-52. *Galathea Rep*. 20: 1-317.

Baba, K., E. MacPherson, G. C. B. Poore, S. T. Ahyong, A. Bermudez, P. Cabezas, C.-W. Lin, M. Nizinski, C. Rodrigues & K. E. Schnabel. 2008. Catalogue of squat lobsters of the world (Crustacea: Decapoda: Anomura-families Chirostylidae, Galatheidae and Kiwaidae). *Zootaxa*, 1905: 1-220.

Faxon, W. 1893. Reports on the dredging operations off the west coast of Central America to the Galapagos, to the west coast of Mexico, and in the Gulf of California, ... VI. Preliminary descriptions of new species of Crustacea. *Bull*. *Mus*. *Comp*. *Zool*. *Harvard Univ*. 24 (7): 149-220.

Faxon, W. 1895. Reports on an exploration off the west coast of Mexico, Central and South America, and off the Galapagos Islands, in charge of Alexander Agassiz, carried on by the U.S. Fish Commission steamer "Albatross", during 1891, lieut. Commander Z.L. Tanner, U.S.N., commanding. XV. The stalk-eyed Crustacea. *Mem*. *Mus*. *Comp*. *Zool*. *Harvard Coll*. 18, 1-292.

Folk, R. L. 1965. *Petrology of Sedimentary Rocks*. Hemphills Publications Company, Austin.

Hendrickx, M. E. 2012. Crustáceos decápodos (Arthropoda: Crustacea: Decapoda) de aguas profundas del Pacífico mexicano: Lista de especies y material recolectado durante el proyecto TALUD. pp. 283-317. En: *Biodiversidad y comunidades del talud continental del Pacífico mexicano*. Eds. P. Zamorano, M.E . Hendrickx & M. Caso. Secretaría del Medio Ambiente y Recursos Naturales (SEMARNAT), Instituto Nacional de Ecología (INE). 468 pp. http://www2.ine.gob.mx/publicaciones/libros/690/crustaceos.pdf.

Hendrickx, M.E. & A.W. Harvey. 1999. Checklist of anomuran crabs (Crustacea: Decapoda) from the Eastern Tropical Pacific. *Belg*. *Jour*. *Zool*. 129 (2): 327-352.

Hendrickx M. E. & D. Serrano. 2010. Impacto de la zona de mínimo de oxígeno sobre los corredores pesqueros en el Pacífico mexicano. *Interciencia*, 35: 12-18.

Helly, J. J. & L. A. Levin. 2004. Global distribution of naturally occurring marine hypoxia on continental margins. *Deep-Sea Res*. Pt. 1, 51: 1159-1168.

Loring, D. H. & R. T. T. Rantala. 1992. Manual for the geochemical analyses of marine sediments and suspended particulate matter. *Earth-Science Rev*. 32(9): 235-316.

Lovrich, G. A. & M. Thiel. 2011. Ecology, physiology, feeding and trophic role of squat lobsters. Pp. 183-222. In: *The biology of squat lobsters*. Eds. G. C. B. Poore, S. T. Ahyong & J. Taylor. CRC Publishing.

Milne-Edwards, A. & E.-L. Bouvier. 1894. Considérations générales sur la famille des Galathéidés. *Ann*. *Sc*. *Nat*. *Zool*. 7e sér. XVI: 191-327.

Schnabel, K. E., P. Cabezas, A. McCallum, E. Macpherson, S. T. Ahyong, & K. Baba. 2011. Worldwide distribution patterns of squat lobsters. Pp: 149-182. In: *The Biology of Squat Lobsters*. Eds. G. C. B. Poore, S. T. Ahyong & J. Taylor. CRC Publishing.

Wicksten, M. K. 1989. Ranges of offshore decapod crustaceans in the eastern Pacific Ocean. *Trans*. *San Diego Soc*. *Nat*. *Hist*. 21 (19): 291-316.

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