

## First record of *Glycera guatemalensis* and *G. sphyrabrancha* (Annelida: Glyceridae) from Western Mexico

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**ABSTRACT. Introduction:** Glycerides, commonly called “blood worms”, are relatively thin polychaetes that reach considerable sizes. They have been reported for all the seas of the world from the intertidal zone to abyssal depths. **Objective:** Evidence the presence of two species of *Glycera* for the littorals of the Mexican Pacific. **Methods:** An analysis of the glycerides of the Pacific coast of Mexico was carried out, finding two species that were collected, one of shrimp trawl at a depth of 18 meters off Puertecitos, Baja California, as well as by manual sampling in the intertidal zone of Concepción Bay, Baja California Sur in the Gulf of California. For their taxonomic determination, morphological characters of greater relevance for their identification were examined, such as jaws, aileron shape, parapodia, chaetae, and the type of pharyngeal papillae. **Results:** We diagnosed and schematized *Glycera guatemalensis* Böggemann & Fiege, 2001 and *Glycera sphyrabrancha* Schmarda, 1861. **Conclusions:** *Glycera guatemalensis* described for Guatemala and *Glycera sphyrabrancha* described for Jamaica, are recorded for the first time for the Gulf of California.

**Key words:** Glyceridae, *G. guatemalensis*, *G. sphyrabrancha*, new records, Gulf California.

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Glyceridae Grube, 1850 is a polychaete family whose species have predatory habits, these can be found associated to soft-bottom substrates, and are called “bloodworms” commonly. There are 87 valid species belonging to five genera (Read & Fauchald, 2019). The first report of a glycerid for western Mexico was made by Moore (1911), who describes *Glycera branchiopoda* from Collnet basin, NW Baja California Peninsula, at 1

400 ft depth. Posteriorly, Glyceridae has been treated by several authors whom report 20 species of genus *Glycera*: *G. americana* Leidy, 1855, *G. branchiopoda* Moore, 1911, *G. brevicirris* Grube, 1870, *G. capitata* Ørsted,

1843, *G. dibranchiata* Ehlers, 1868, *G. lapidum* Quatrefages, 1866, *G. longipinnis* Grube, 1878, *G. oxycephala* Ehlers, 1887, *G. pacifica* Kinberg, 1865, *G. papillosa* Grube, 1857, *G. profundus* Chamberlin, 1919, *G. prosobranchia* Boggeman & Fiege 2001, *G. robusta* Ehlers, 1868, *G. tenuis* Hartman, 1944, *G. tessellata* Grube, 1863, *G. sphyrabrancha* Schmarda, 1861, and genus *Hemipodus*: *H. armata* Hartman, 1950, *H. californiensis* Hartman, 1938, *H. pustulata* (Friedrich, 1956), *H. simplex* (Grube, 1857) (Chamberlin, 1919; Hartman, 1940, 1950, 1963; Rioja, 1941, 1947; Treadwell, 1942; Fauvel, 1943; Berkeley & Berkeley, 1950; Reish, 1963, 1968;

Fauchald, 1972; Kudenov, 1975, 1980; Blake, 1985; Salazar-Vallejo, de León González, & Chávez-Comparán, 1990; Hernández-Alcántara & Solís-Weiss, 1993, 1999; Böggemann, 2002; Hernández-Alcántara, Tovar-Hernández, & Solís-Weiss, 2008; Díaz-Castañeda, de León-González, & Solana-Arellano, 2014; Villalobos-Guerrero & Molina-Acevedo, 2014; Prado-Navarro, Díaz-Castañeda, Leija-Tristán, & de León-González, 2016; Cuéllar-Mercado, Hernández-Alcántara, & Solís-Weiss, 2019). The aim of this study is to describe and illustrate species of Glyceridae previously unknown from western Mexico.

## MATERIAL AND METHODS

The examined material is the result of a series of sampling efforts, from the intertidal zone to the Continental Shelf of the upper Gulf of California, as well as a monitoring program in the shore of the main bays. Glycerids were sampled on intertidal and associated to a shrimp trawl at 30 m depth. Specimens were fixed in formaldehyde and preserved in 70 % ethanol. The material was deposited in the Polychaete Collection of the Universidad Autónoma de Nuevo León (NL-INV-0002-05-09), México.

## SYSTEMATIC ACCOUNT

Glyceridae Grube, 1850

*Glycera* Savigny in Lamarck, 1818

*Glycera guatemalensis*

Böggemann & Fiege, 2001

(Fig. 1)

*Glycera lancadivae*.- Berkeley & Berkeley, 1939:334 (*vide* Böggemann, 2002, non Schmarda 1861).

*Glycera guatemalensis* Böggemann & Fiege, 2001:35; figs. 4, 8g-h, 10; Böggemann, 2002: 43-44, Figs. 31-33.

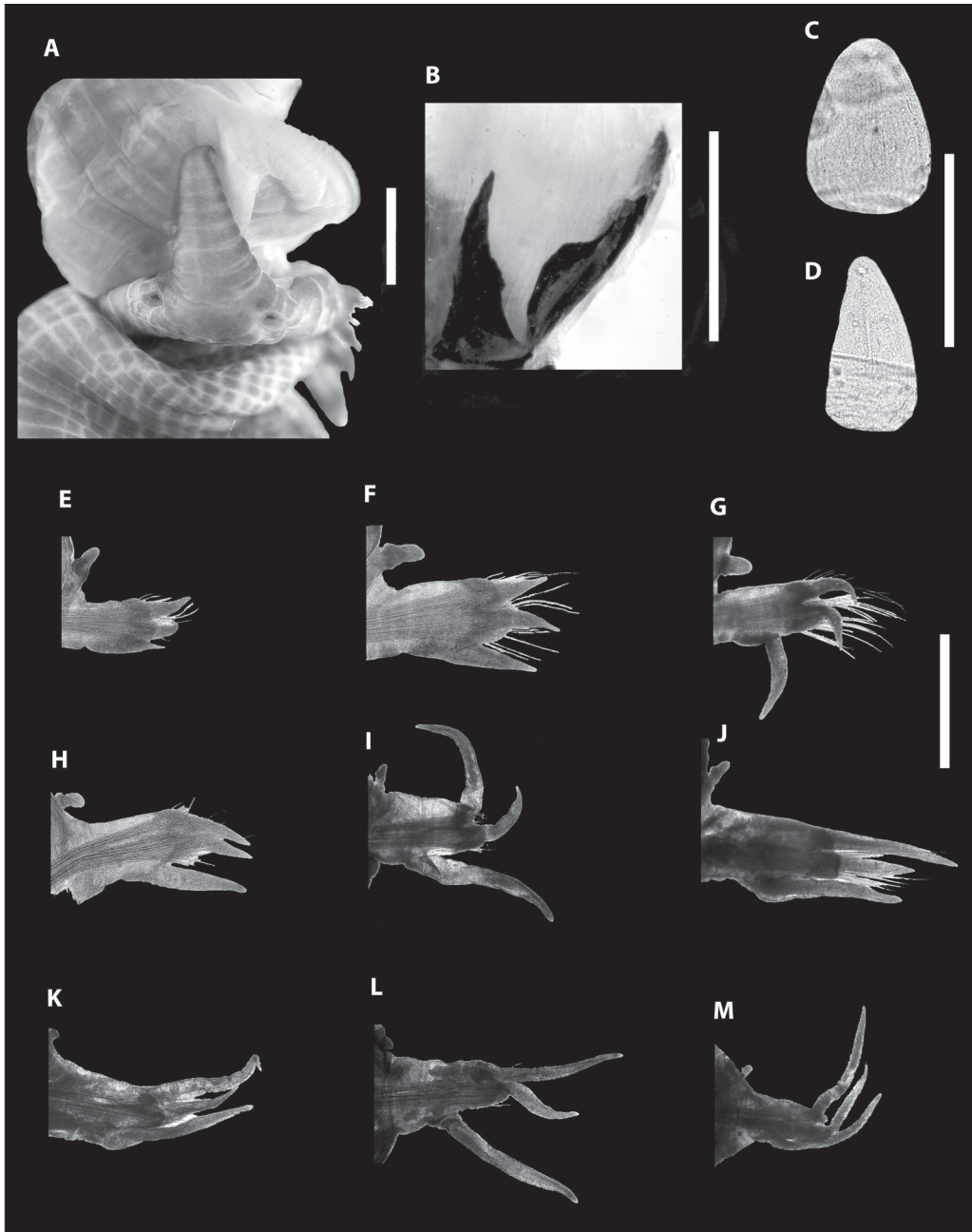
**Examined material:** Two specimens (UANL 8128). Puertecitos, Baja California,

Gulf of California, 30°24'46" N, 114°38'01" W, 18 m, December 28, 1985, col. Eulogio Reyes, by catch in shrimp trawl.

**Description:** Both specimens complete, longer specimen 171 mm long, 7.5 mm wide, with 318 chaetigers; shorter specimen 166 mm long, 6.8 mm wide and 287 chaetigers. Segments bi-annulate from chaetiger 15. Conical prostomium with 10 rings (Fig. 1A). Pharynx completely everted, 37 and 20 mm long, respectively. Two types of papillae arranged irregularly along surface: 1) mostly conical with a straight, median, longitudinal ridge (Fig. 1D); 2) other isolated, globular, without ridges (Fig. 1C). Pharynx armed with four terminal jaws and ailerons with a deeply incised base, outer ramous slightly pointed (Fig. 1B).

First two parapodia uniramous, following parapodia biramous. Parapodia with two slender triangular to digitiform prechaetal lobes, anterior ones with both lobes of about same length (Fig. 1E-H); mid-body and posterior parapodia with notopodial lobes longer and slightly wider than neuropodial ones (Fig. 1I-M). Postchaetal lobes shorter, rounded, neuropodial slightly longer than notopodial one. Dorsal cirri conical to oval from chaetiger 3, inserted on parapodial basis (Fig 1E-M). Ventral cirri slender, triangular to digitiform, on anterior parapodia slightly longer than post-chaetal neuropodial lobe, on mid-body and posterior parapodia, almost longer than pre-chaetal neuropodia (Fig. 1I-M). Branchiae absent.

**Remarks:** The unique morphological difference between the Mexican and Guatemalan specimens is that the Mexican specimens present anterior dorsal cirri nearly digitiform, middle-anterior ones oval, and middle-posterior and posterior ones conical. Guatemalan specimens have anterior dorsal cirri oval, middle ones conical and posterior ones oval. However, that variation may due to ontogenetic events, our specimens are twice longer than type specimens.



**Fig. 1.** *Glyceria guatemalensis* A. Anterior end, dorsal view; B, Aileron; C, Globular proboscidal papilla; D, Conical proboscidal papilla; E Chaetiger 5; F, Chaetiger 11; G, Chaetiger 20, H, Chaetiger 30; I, chaetiger 70; J. Chaetiger110; K, Chaetiger 215; M, Chaetiger 300. (Scale bars: A-B=1 mm; C-D= 0.001 mm; E-M= 1 mm).

**Distribution:** This species was previously known by the type locality, San José, Guatemala, at 18 m depth (Böggemann, 2002). It is first report for the Gulf of California.

*Glycera sphyrabrancha* Schmarda, 1861  
(Fig. 2)

*Glycera sphyrabrancha* Schmarda, 1861: 96; Pl. 30, Fig. 240, texfigs. a-c; Böggemann, 2002: 42-43, Figs. 28-30.

**Material examined:** One specimen (UANL8129). Cocos beach, Concepción Bay, Baja California Sur, 26°44'39.1" N, 111°53'55.4" W, intertidal, April 01, 2011, Coll. MEGG and JALG.

**Description:** Specimen complete, 165 mm long, 3.76 mm wide, and 295 chaetigers. Segments bi-annulate with same size of annuli from chaetiger 10, anterior ones uni-annulate. Conical prostomium with 11 rings (Fig. 2A). Pharynx everted 15 mm long, with two types of papillae: 1) numerous digitiform papillae without ridges (Fig. 2C); 2) some isolated, oval to globular papillae, without ridges (Fig. 2D). Pharynx with four terminal jaws, ailerons with deeply incised base (Fig. 2B).

First two parapodia uniramous, following parapodia biramous. Two slender triangular to digitiform prechaetal lobes, on anterior parapodia, noto- and neuropodial prechaetal lobes subequal, middle and posterior parapodia with neuropodial prechaetal lobes slightly longer than notopodial ones. Postchaetal lobes rounded. Dorsal cirri from third parapodia, inserted slightly above parapodial base, digitiform with a slightly swollen dorso-basally, longer on anterior parapodia, diminishing in size from middle to posterior parapodia (Fig. 2 E-M). Ventral cirri triangular on anterior parapodia (Fig. 2 E-G), digitiform on middle body region (Fig. 2H-J) and slender on posterior parapodia (Fig. 2K-M). Branchiae non-retractile, simple, appear on chaetiger 15 near upper chaetal lobe; slightly triangular anteriorly (Fig. 2F), becoming digitiform from

middle of anterior region, and best developed in middle body region (Fig. 2G-J), in all parapodia branchiae inserted basally.

**Remarks:** The original description and illustrations of *G. sphyrabrancha* by Schmarda (1861) are not clear; however, Böggemann (2002) analyzed and redescribed the holotype collected in Jamaica. Our specimen collected in the Gulf of California is morphologically similar to the type redescribed by Böggemann (2002), but varies slightly in the shape of the dorsal cirrus, being conical to oval in the holotype *versus* digitiform and swollen basally in our specimen. As in the previous species, these differences can be attributed to ontogeny.

**Distribution.** This species is distributed in tropical waters, from intertidal to 250 m depth: Georgia and Florida (USA), Gulf of Mexico, Caribbean Sea, Puerto Rico, Barbados, Panamá (both sides), South Africa, Arabian Sea, Bay of Bengal and Solomon Islands (Böggemann, 2002).

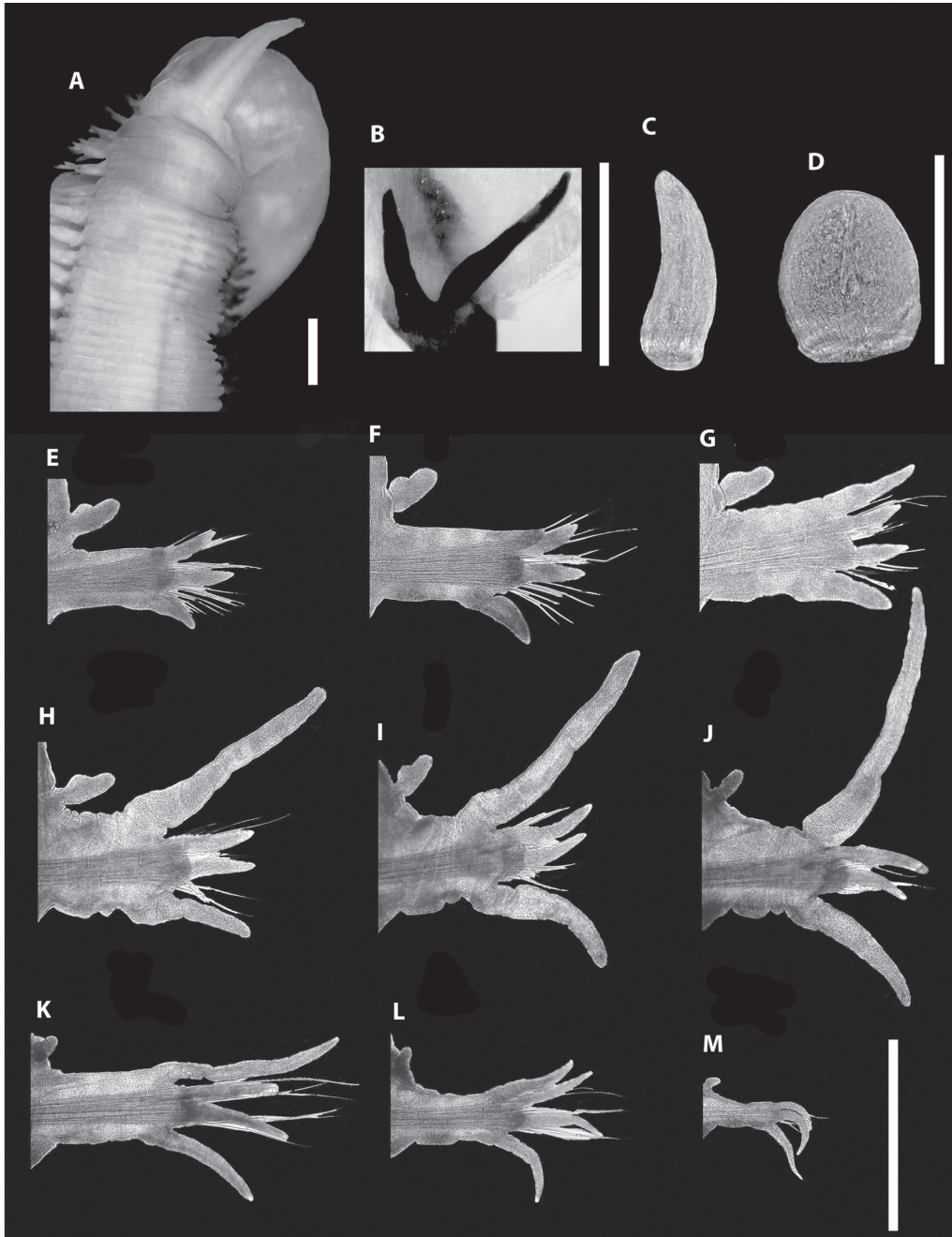
**Ethical statement:** authors declare that they all agree with this publication and made significant contributions; that there is no conflict of interest of any kind; and that we followed all pertinent ethical and legal procedures and requirements. All financial sources are fully and clearly stated in the acknowledgements section. A signed document has been filed in the journal archives.

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#### RESUMEN

**Primer registro de *Glycera guatemalensis* y *G. sphyrabrancha* (Annelida: Glyceridae) para el oeste de México. Introducción:** Los Glicéricidos son llamados comúnmente "gusanos de sangre", son poliquetos relativamente delgados que alcanzan tallas considerables. Han sido



**Fig. 2.** *Glycera sphyrabrancha* A, Anterior end, dorsal view; B, Aileron; C, Conical proboscoidal papilla; D, Globular proboscoidal papilla; E, chaetiger 11; F, chaetiger 19; G, chaetiger 30; H, chaetiger 70; I, chaetiger 110; J, chaetiger 200; K, chaetiger 249; L, chaetiger 280; M, chaetiger 290. (Scale bars: B-D front view; E-M posterior view; scale bars A-B = 1 mm, C-D= 0.01 mm, E-M= 1 mm).

reportados para todos los mares del mundo desde la zona de entremareas hasta profundidades abisales. **Objetivo:** Evidenciar la presencia de dos especies de *Glycera* para los litorales del Pacífico mexicano. **Métodos:** Se realizó un análisis de los glicéridos de la costa del pacífico de México, encontrando dos especies que fueron recolectadas, una de arrastre camarero a una profundidad de 18 metros frente a Puertecitos, Baja California, así como mediante muestreo manual en la zona de entremareas de bahía Concepción, Baja California Sur en el golfo de California. Para su determinación taxonómica se examinaron los caracteres morfológicos de mayor relevancia para su determinación, como mandíbulas, forma del aileron, parapodios, setas, branquia, y tipo de papilas faríngeas. **Resultados:** En este trabajo se diagnostican y esquematizan *Glycera guatemalensis* Böggemann & Fiege, 2001 y *Glycera sphyrabrancha* Schmarda, 1861. **Conclusión:** *Glycera guatemalensis* descrita para Guatemala y *Glycera sphyrabrancha* descrita para Jamaica, se registran por primera vez para el golfo de California.

**Palabras clave:** Glyceridae, *G. guatemalensis*, *G. sphyrabrancha*, nuevos reportes, Golfo de California.

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