



Research note

New eastern Pacific Ocean record of the rare deep-water fish, *Psychrolutes phrictus* (Scorpaeniformes: Psychrolutidae)

Registro nuevo en el océano Pacífico oriental de un pez raro de profundidad, Psychrolutes phrictus (Scorpaeniformes: Psychrolutidae)

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Abstract

Psychrolutes phrictus is a benthic deep sea fish known from the eastern North Pacific. On 30 March 2008, a specimen of the blob sculpin *P. phrictus* (297 mm LT) was caught off the Guerrero coast, Mexico (17°45'24"N, 101°59'04"W). The blob sculpin was taken at a depth of 1,100 m within a temperature range of 3.88–4.25 °C, where hypoxic (0.57–0.39 mg/l) conditions prevailed; the specimen was captured over a muddy bottom using a benthic sledge. Representatives of this species had never been reported off the Mexican Pacific coast; our new record extends the known southernmost range by 1,733 km, from 33°19'N to 17°45'N for the American coast. Although high variations in morphometric and meristic values are known for the 4 species of the genus *Psychrolutes* (*P. paradoxus*, *P. phrictus*, *P. sigalutes*, and *P. sio*) from the eastern Pacific Ocean, a combination of traits and species distribution allow us to identify this specimen as *P. phrictus*.

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Keywords: Blob sculpin; Benthic; Mexican Pacific coast; Hypoxic conditions; Morphometrics; Meristics

Resumen

Psychrolutes phrictus es un pez bentónico de profundidad, que se distribuye en el Pacífico Norte. El 30 de marzo de 2008 se capturó un espécimen del pez gota *P. phrictus* (297 mm LT) frente a las costas de Guerrero (17°45'24" N, 101°59'04" W), a una profundidad de 1,100 m, temperatura de 3.88 a 4.25 °C, donde las condiciones de hipoxia prevalecen (0.57-0.39 mg/l); el arrastre se realizó con un patín béntico sobre un fondo fangoso. A la fecha no se había documentado ningún ejemplar de esta especie en las costas de México, por lo que este nuevo registro extiende el intervalo más sureño de distribución 1,733 km de 33°19' N a 17°45' N para la costa americana. Aun cuando las variaciones merísticas y morfológicas son grandes en las 4 especies del género *Psychrolutes* (*P. paradoxus*, *P. phrictus*, *P. sigalutes* y *P. sio*) en el océano Pacífico oriental, una combinación de caracteres y de su distribución permiten determinar el espécimen en cuestión como *P. phrictus*.

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Palabras clave: Pez gota; Bentónico; Costa pacífica mexicana; Hipoxia; Morfometría; Merística

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The family Psychrolutidae [Günther, 1861](#) is characterised by having large heads and bodies that taper back into small, flat tails, a spinous dorsal fin buried in loose skin and flesh ([Jordan & Gilbert, 1882](#)), a suborbital stay, pseudobranchiae, pelvic fins of thoracic position, 3 and a half gill arches, naked skin ([Günther,](#)

Table 1
Counts and measurements of *Psychrolutes phrictus* from the Mexican Pacific coast, ICMYL.D.882, compared with published data (Matarese & Stein, 1980; Stein & Bond, 1978; Yabe, Maruyama, & Amaoka, 1983). Quality (Q) indicates if the corresponding measurement of the ICMYL.D.882 is above, below, or inside the range reported in the literature. Morphometric measurements as a percentage of standard length (% SL) and head length (% HL).

| Counts | ICMYL.D.882 | | | Literature | | Q | |
|---------------------------|-------------|-------|-------|------------|--------|------------|--------|
| | | | | Min | Max | | |
| Dorsal fin spines | VIII | | | VII | VIII | Inside | |
| Anal fin rays | 13 | | | 12 | 14 | Inside | |
| Pectoral fin rays | 21 | | | 22 | 26 | Below | |
| Pelvic fin rays | I,3 | | | I,3 | I,3 | Inside | |
| Caudal fin rays | 13 | | | 13 | 13 | Inside | |
| Gill rakers first arch | 7 + 2 | | | 9 | 13 | Inside | |
| Vertebrae | 33 | | | 33 | 36 | Inside | |
| Abdominal | 12 | | | 12 | 13 | Inside | |
| Caudal | 21 | | | 21 | 24 | Inside | |
| Character | mm | (%SL) | (%HL) | (%SL) | Q | (%HL) | Q |
| Total length | 297 | | | | | | |
| Standard length | 222 | | | | | | |
| Measurements | | | | | | | |
| Predorsal length | 108.3 | 49 | 98 | | | | |
| Snout-anus length | 144 | 65 | 131 | | | 93.8–132.2 | Inside |
| Prepectoral length | 73 | 33 | 66 | | | | |
| Prepelvic length | 87 | 39 | 79 | | | | |
| Pectoral fin length | 59 | 27 | 54 | | | 44.9–62.3 | Inside |
| Pectoral fin spine length | 29 | 13 | 26 | | | | |
| Pelvic fin length | 27 | 12 | 25 | | | | |
| Pelvic fin spine length | | | | | | | |
| Pectoral base | 48 | 22 | 44 | | | | |
| Dorsal fin length | 120 | 54 | 109 | | | | |
| Caudal fin length | 75 | 34 | 68 | | | | |
| Caudal peduncle length | 17 | 8 | 15 | | | | |
| Caudal peduncle depth | 19 | 9 | 17 | 6.7–8.3 | Above | | |
| Head height (Body depth) | 80 | 36 | 73 | 23.3–34.5 | Above | | |
| Head length | 110 | 50 | 100 | 41–60.6 | Inside | | |
| Head width | 126 | 57 | 115 | | | | |
| Snout length | 34 | 15 | 31 | 13.3–14.3 | Above | 30.3–35.7 | Inside |
| Eye diameter (horizontal) | 11 | 5 | 10 | | | 7.9–13 | Inside |
| Eye diameter (vertical) | 8 | 4 | 7 | | | | |
| Interorbital space | 52 | 23 | 47 | | | 33.2–47.6 | Inside |
| Internostril space | 37 | 17 | 34 | | | | |
| Superior jaw length | 27 | 12 | 25 | | | | |
| Inferior jaw length | 21 | 9 | 19 | | | | |

1861), and 7 branchiostegal rays (Yabe, 1984). In the eastern Pacific Ocean, 4 species of the genus *Psychrolutes* have been reported: *Psychrolutes paradoxus* Günther, 1861 occurs from the North Pacific to northern Bering Sea (Eschmeyer & Fong, 2015). *Psychrolutes phrictus* Stein and Bond, 1978 occurs between California and the northern Bering Sea (Stein & Bond, 1978); *Psychrolutes sigalutes* (Jordan & Starks, 1895) from the Bering Sea to eastern North Pacific (Eschmeyer & Fong, 2015); and *Psychrolutes sio* Nelson, 1980 from northernmost Peru to central Chile (Nelson, Chirichigno, & Balbontin, 1985). Confirmation of the taxonomic identity of this specimen was made by comparison of the meristic and morphometric characters reported for the 4 species from the eastern Pacific Ocean (Tables 1 and 2).

Representatives of *P. phrictus* have never been reported off the Mexican Pacific coast; thus our new record extends the known southernmost range 1,733 km from 33°19'N (LACM, 2015) to 17°45'N off the western American coast (Fig. 1). The

blob sculpin was collected on 30 March 2008 using a benthic sledge at a depth range of 1,100–1,199 m and a water temperature range of 3.88–4.25 °C, where hypoxic (0.57–0.39 mg/l) conditions prevailed, during the oceanographic cruise Talud XII, Sta. 13 south-east of Petacalco, Guerrero, México (17°45'24"N, 101°59'04"W). The specimen was collected by the R.V. El Puma of the Universidad Nacional Autónoma de México. Because of the uniqueness of this specimen, it was fixed in 10% formalin and later preserved in 70% ethanol. The specimen was deposited in the reference collection (fishes) of the Instituto de Ciencias del Mar y Limnología, Unidad Académica Mazatlán, with the catalogue number ICMYL.D.882.

Measurements and counts follow Nelson (1982). Electron tomography was taken to enable the count of vertebrae and facilitate the examination of branchiostegal rays, using a Toshiba Multislice CT. Axial, sagittal, and coronal reformatting and 3D reconstructions (slice interval: 0.6 mm) were performed on

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