

# A New Blind Mysid Genus, *Eoamblyops*, from Japan with the Description of a New Species (Crustacea, Mysida, Mysidae, Erythropinae)

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**Abstract** A new blind mysid genus, *Eoamblyops*, is established. It is distinguished from allied genera by having the eyes reduced to two semicircular plates, the antennal scale with a denticle located at the distal end of the lateral margin and unarmed with any subsidiary spinule in its inner side, the antennal peduncle composed of three segments ranged straight, the antennal sympod with two denticles at the distolateral corner, the labrum pointed anteriorly, third to eighth thoracopods with very slender endopods, and the second to fifth male pleopods with side lobes slender and not dilated distally. A new species belonging to this new genus, *E. japonicus*, is described.

**Key words:** Mysidae, Erythropinae, *Eoamblyops*, Japan, taxonomy, new genus, new species.

## Introduction

Among meso- and bathypelagic mysids, many blind species having separated plate-like eyes without cornea have been known. These belong to such genera as *Amblyops* Sars, 1872, *Paramblyops* Holt and Tattersall, 1905, *Amblyopsoides* O. S. Tattersall, 1955, and *Scolamblyops* Murano, 1974. The present blind mysid specimens collected from Japanese waters cannot be referred to any of the above-mentioned genera due to characters of the eyes. For their accommodation, therefore, a new genus and a new species are established.

Specimens examined are stored in National Museum of Nature and Science, Tsukuba (NSMT).

## Results

### *Eoamblyops* gen. nov.

New genus B: Bravo, 1996: 43.

**Diagnosis.** Carapace broadly rounded anteriorly, without definite rostral projection.

Eyes in form of separated immovable plates without cornea.

Antennular peduncle with third segment relatively slender, more robust in male than in female.

Antennal scale elongated, overreaching distal margin of third segment of antennular peduncle by 1/4 to 1/5 of its length; distolateral denticle stout, without subsidiary spinule on inner side; suture marking off small distal joint; lateral margin straight and naked. Antennal peduncle consisting of 3 segments ranged straight, with second segment longest. Antennal sympod with 2 denticles at distolateral corner.

Labrum with small spine-like median projection anteriorly.

Endopods of third to eighth thoracopods very slender; carpopropodus divided into 3 subsegments with first subsegment longest.

Female with 3 pairs of oostegites.

Male pleopods well developed, biramous and natatory; first pair with unsegmented endopod and multi-segmented exopod; second to fifth pairs with multi-segmented endopods and exopods; endopod of fourth pair armed with pair of modified setae terminally; side lobe slender, not dilated distally. Female pleopods reduced to unsegmented single lobe.

Table 1. Morphological comparison among three genera, *Amblyops*, *Amblyopsoides* and *Eoamblyops*.

	Genus <i>Amblyops</i> Sars, 1872*	Genus <i>Amblyopsoides</i> Tattersall, 1955**	Genus <i>Eoamblyops</i> gen. nov.
Shape of eyeplate in dorsal view	Quadrangular in general	Quadrangular in general.	Semicircular
Lateral denticle of antennal scale	Located at distal end of lateral margin	Located at distal 1/3 to 1/2 of lateral margin	Located at distal end of lateral margin
Subsidiary spinule on inner side of lateral denticle of antennal scale	Usually present	Absent	Absent
Antennal peduncle	Four-segmented; second segment connected to ventral side of third segment	Three-segmented; second segment connected to proximal end of third segment	Three-segmented; second segment connected to proximal end of third segment
Antennal sympod	With one spine at distolateral corner	With one spine at distolateral corner	With two spines at distolateral corner

\*References: Sars (1872) and Murano (2012).

\*\*References: Tattersall (1955) and Ledoyer (1990).

Uropodal endopod tapering, armed with single slender spine on inner margin of statocyst region. Uropodal exopod straight, much longer than endopod.

Telson rather truncate; posterior margin slightly arched, armed with pair of median plumose setae and 3 pairs of spines, of which median pair is very short; lateral margin armed with about 15 spines of variable length on posterior 2/3.

*Type species.* *Eoamblyops japonicus* gen. nov., sp. nov.

*Etymology.* The generic name is derived from Greek “*eo*”, east, plus *Amblyops*; gender masculine.

*Remarks.* The new genus *Eoamblyops* is closely allied to *Amblyops* and *Amblyopsoides*, by having the separated plate-like eyes without cornea and the shape and armature of the uropod and telson. In some respects, however, it is distinguished from two latter genera. Morphological differences among these three genera are indicated in Table 1.

The new genus *Eoamblyops* is identical with an unnamed genus (New genus B) reported from the same locality by Bravo (1996, p. 43), agreeing particularly closely in features of the eyes, antenna and telson.

### *Eoamblyops japonicus* sp. nov.

(Figs. 1–3)

New genus B, new species: Bravo, 1996: 44–45, figs. 33–35.

*Type series.* Holotype, adult female (9.1 mm), NSMT-Cr 22391; allotype, adult male (8.7 mm), NSMT-Cr 22392; paratypes, 5 adult males (8.3–8.6 mm) and 7 adult females (8.8–11.0 mm), NSMT-Cr 22393, RV “Tansei Maru” KT-71-12 Cruise, Stn. 557-1, Suruga Bay (35°06.3'N 138°40.3'E), Japan, 13 August 1971, 23:08–23:27, ORI net that contacted the seafloor at about 280 m depth during an oblique tow.

*Other materials examined.* Nineteen adult females (9.0–10.7 mm) and 23 immature males (<8.5 mm), NSMT-Cr 22394, same data as type series. Three adult males (11.3–11.9 mm), 8 adult females (10.9–13.3 mm), 3 immature males (<11.2 mm) and 2 juveniles, NSMT-Cr 22395, RV “Tansei Maru” KT-71-1 Cruise, Stn. 533, Suruga Bay (34°45.0'N 138°22.8'E), Japan, 24 January 1971, 12:27–12:50, 570–660 m, bottomnet, coll. M. Murano. One immature female (7.7 mm), NSMT-Cr 22396, RV “Seiyo Maru” Cruise, Tateyama Bay (34°55.6'N 140°08.2'E), Japan, 7 August 1979, 14:12–14:32, 520–530 m, sledge net, coll. M. Murano. Twelve males (damaged, <7.6 mm) and 6 females (damaged, <9.2 mm), NSMT-Cr 22397, RV “Seiyo Maru” Cruise,

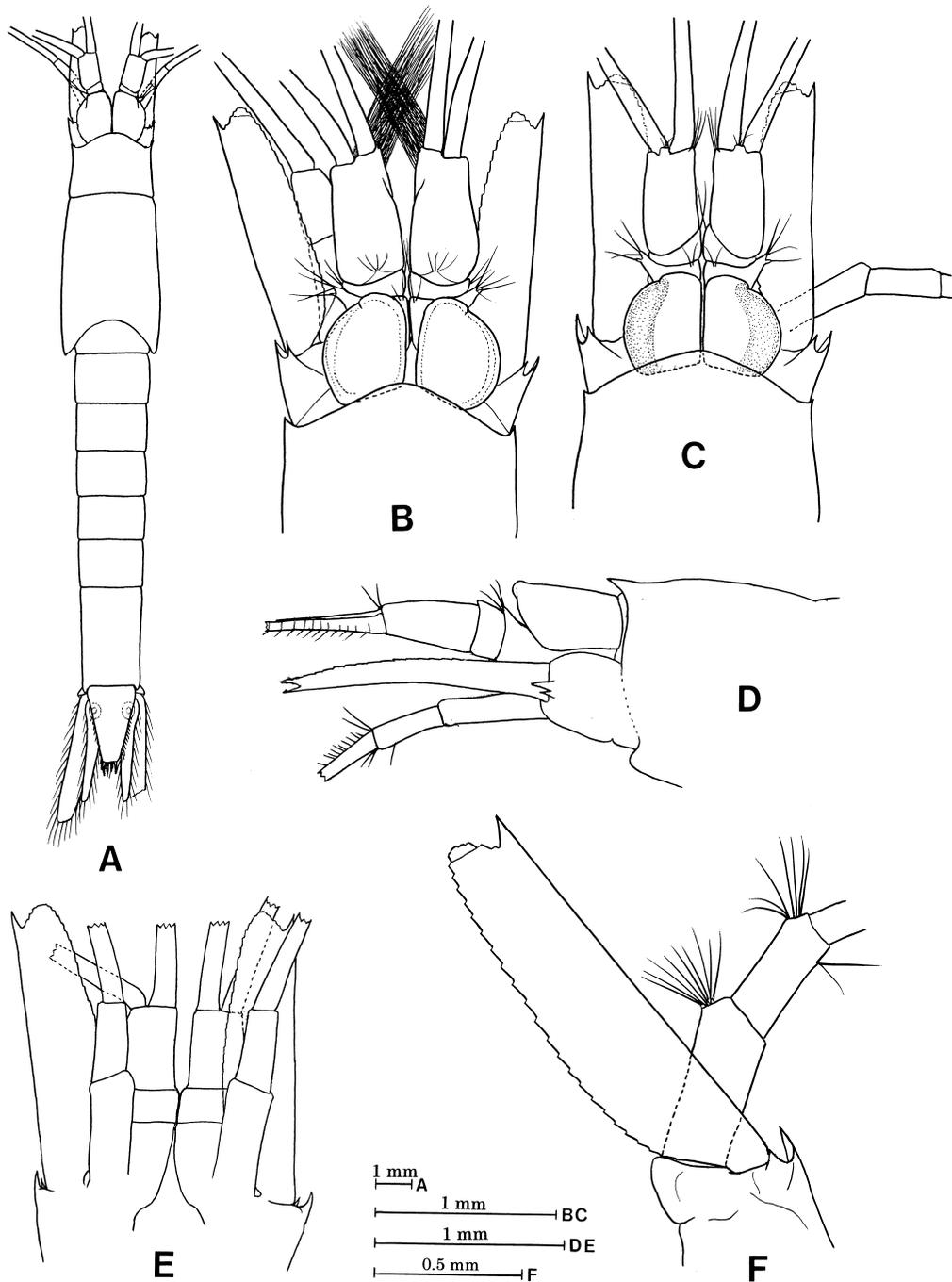


Fig. 1. *Eoamblyops japonicus* gen. nov., sp. nov. — C, F, holotype, female (NSMT-Cr 22391); B, allotype, male (NSMT-Cr 22392); A, D, E, one of female paratypes (10.8mm) (NSMT-Cr 22393). A, whole body in dorsal view; B, C, anterior part of body in dorsal view; D, anterior part of body in lateral view; E, anterior part of body in ventral view; F, antenna.

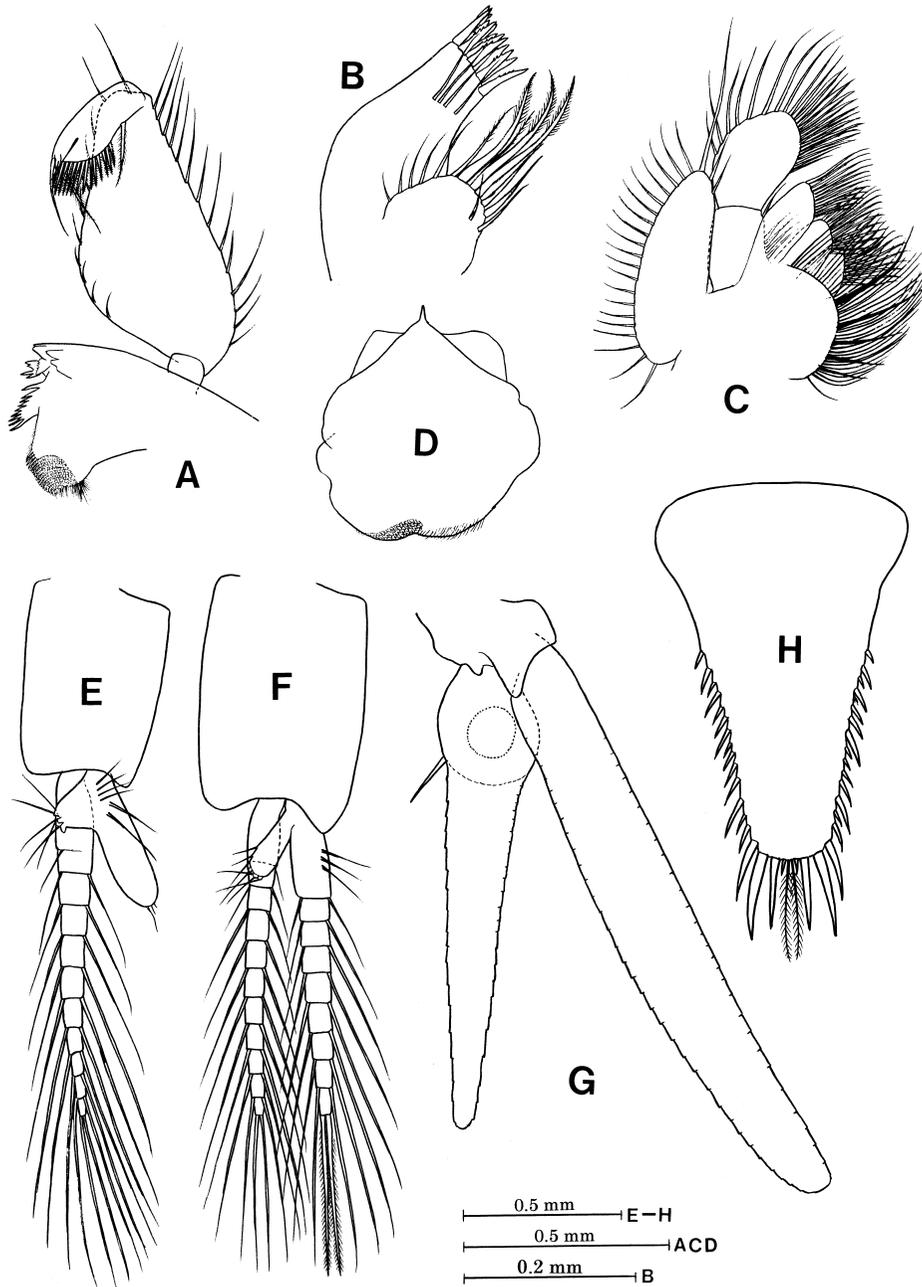


Fig. 2. *Eoamblyops japonicus* gen. nov., sp. nov.—A–D, G, H, holotype, female (NSMT-Cr 22391); E, F, allotype, male (NSMT-Cr 22392). A, mandible and mandibular palp; B, maxillule; C, maxilla; D, labrum; E, first pleopod; F, fourth pleopod; G, uropod; H, telson.

Sagami Bay (35°14.3'N 139°24.7'E), Japan, 16 October 1990, 14:12–14:32, 310m, sledge net, coll. M. Murano.

*Description.* Body (Fig. 1A) rather robust.

Carapace (Fig. 1A–C) with anterior margin broadly rounded, without definite rostral projection, covering basal part of eyes; anterolateral corner of carapace (Fig. 1D) rounded; posterior

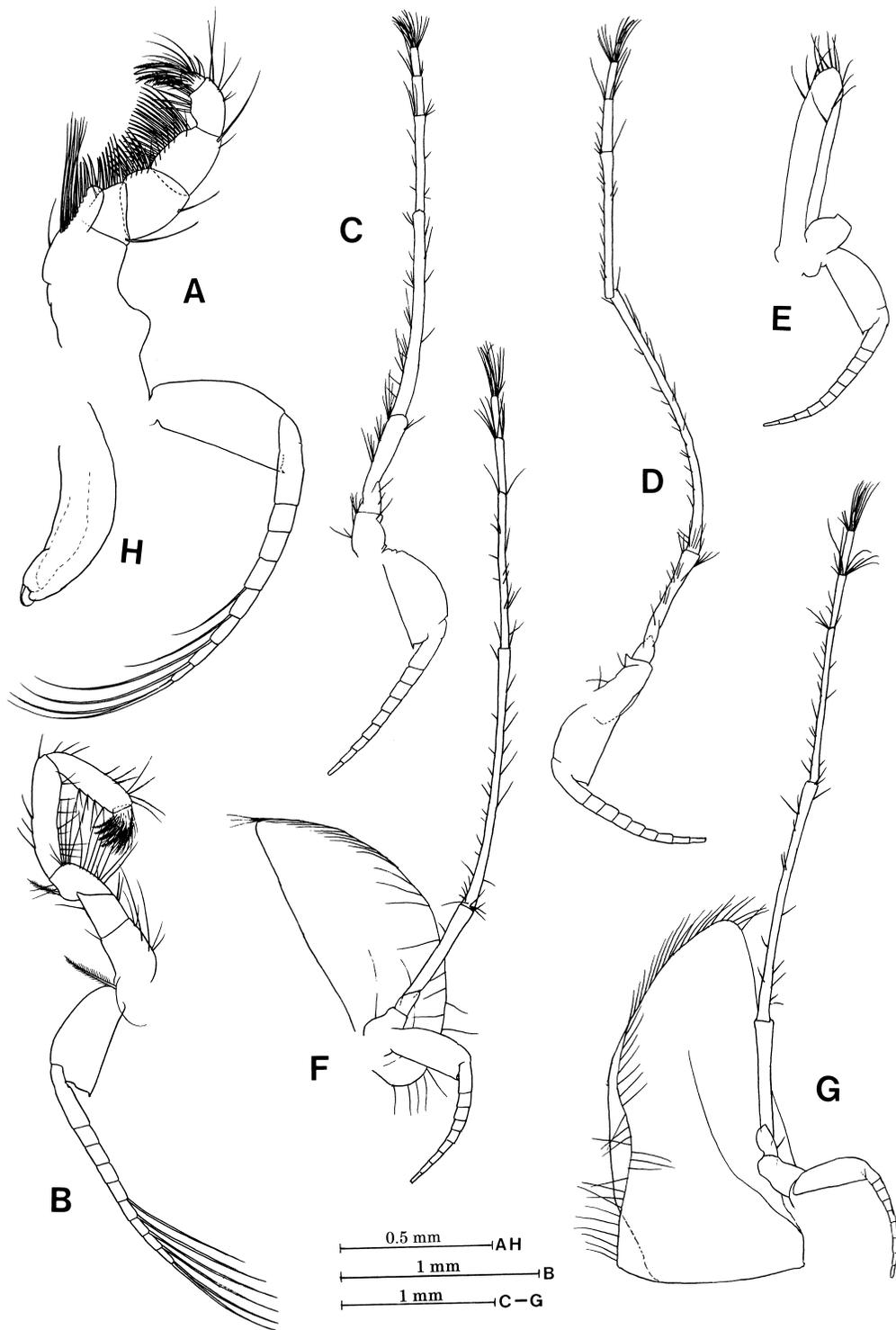


Fig. 3. *Eoamblyops japonicus* gen. nov., sp. nov.—A–G, holotype, female (NSMT-Cr 22391); H, one of male paratypes (8.6 mm) (NSMT-Cr 22393). A, first thoracopod; B, second thoracopod; C, third thoracopod; D, fifth thoracopod; E, exopod and oostegite of sixth thoracopod; F, seventh thoracopod; G, eighth thoracopod; H, genital organ.

margin (Fig. 1A) emarginate, leaving last thoracic somite exposed dorsally.

Eyes (Fig. 1A–C) plate-like, separated from each other, contiguous along inner margin; each eyeplate semicircular in dorsal view, longer than broad, without functional visual elements, with shallow incision marking lateral margin from anterior margin; anterior and lateral margins armed neither with serration nor spinulation.

Antennular peduncle of female (Fig. 1A, C) slender; first segment with anterolateral corner prolonged and armed with several setae; second segment very short, armed with one seta at distomesial corner; third segment connected with second segment obliquely, twice as long as broad, longer than first and second segments together, armed with several setae at distomesial corner. Antennular peduncle of male (Fig. 1B) slightly larger and stouter than that of female; third segment becoming gradually narrower distally, with appendix masculine small.

Antennal scale (Fig. 1B, C, F) 4.2 times as long as broad, gradually narrowing from maximum width at about proximal 1/4 to distal end, overreaching distal end of antennular peduncle by 1/4 to 1/3 of its length; outer margin naked and straight; distolateral denticle rather large, without subsidiary spinule on inner side; apex of blade extending to tip of distolateral spine; distal suture marked off small part. Antennal peduncle (Fig. 1B, C, F) barely extending to distal end of antennular peduncle, reaching distal 1/3 of antennal scale, composed of 3 segments ranged straight; first segment very short, second segment as long as first and third segments combined. Antennal sympod (Fig. 1B, C, F) armed at distolateral corner with 2 denticles, lower denticle longer than upper one.

Strong, long, naked median process (Fig. 1E) emerging from just front of labrum and extending to level of distal margin of first segment of antennular peduncle.

Mandibular palp, maxillule, maxilla and first and second thoracopodal endopods as illustrated (Figs. 2A–C, 3A, B). Labrum (Fig. 2D) symmetrical, with small spiniform frontal process.

Third to eighth thoracopodal endopods (Fig. 3C, D, F, G) long and very slender; merus slightly curved inwardly, longer than carpopropodus in third to seventh limbs and shorter in eighth limb; carpopropodus divided into 3 subsegments; first subsegment connected with second subsegment by transverse or slightly oblique articulation, longer than second and third subsegments combined; dactylus short, with slender terminal claw. All thoracopodal exopods (Fig. 3A–G) with basal plate provided with small spine at distolateral corner; flagellipart 8-segmented in first limb and 9- or 10-segmented in second to eighth limbs.

Genital organ of male (Fig. 3H) tubular, rather elongated, curving anteriorly, becoming gradually narrower from middle part to distal end in lateral view, armed with single hooked short seta at anterodistal corner.

Female with 3 pairs of oostegites (Fig. 3E–G).

First five abdominal somites (Fig. 1A) subequal; sixth somite (Fig. 1A) about twice as long as fifth.

Female pleopods uniramous, unsegmented, progressively lengthened from first pair to fifth. Male pleopods biramous and natatory; first pair (Fig. 2E) with 12-segmented exopod and unsegmented endopod; endopod reaching fourth segment of exopod, armed with several short setae at apex; side lobe short and broad. Second, third and fifth pleopods with exopods slightly longer than endopods, endopods 8-segmented in second limb, 9-segmented in third and 7-segmented in fifth; exopod 11-segmented in second and third, 10-segmented in fifth; both endopods and exopods without modified setae. Fourth male pleopod (Fig. 2F) with 9-segmented endopod and 11-segmented exopod; endopod with pair of terminal setae slightly stouter than those of preceding segments and armed with short spiniform setae on margins; exopod almost equal to endopod in length, without modified setae.

Uropodal endopod (Fig. 2G) tapering distally, overreaching posterior end of telson by about 1/3 of its length, armed with single slender spine on inner margin of statocyst region. Uropodal exo-

pod (Fig. 2G) elongated, extending posteriorly beyond end of telson by about 2/5 of its length.

Telson (Fig. 2H) rather truncate than linguiform, about 4/5 of sixth abdominal somite in length, about 1.5 times as long as maximum width near base; lateral margin slightly concave, armed with about 15 spines on posterior 3/5; these spines irregular in size, but, on the whole, becoming longer posteriorly; posterior margin entire, slightly arched, armed with pair of median plumose setae and 3 pairs of spines; inner pair of spines minute; middle pair long, 1/5 length of telson; outer pair longest, slightly curved inwardly, 2/9 length of telson.

*Etymology.* The specific name, *japonicus*, is derived from Japan, the country near which the specimens were collected.

*Remarks.* As shown in "Remarks" of the genus, the new species is mainly distinguished from all the known mysid species by a combination of the characteristics of the eyeplates and antenna.

*Distribution.* Known from 280–850 m depths in Suruga Bay, Sagami Bay and Tateyama Bay, central Japan (Bravo, 1996; present study). It is probably an epibenthic form.

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