

## Kurzmitteilung

### Munnopsidid isopod attracted to bait in the DISCOL area, Pacific Ocean

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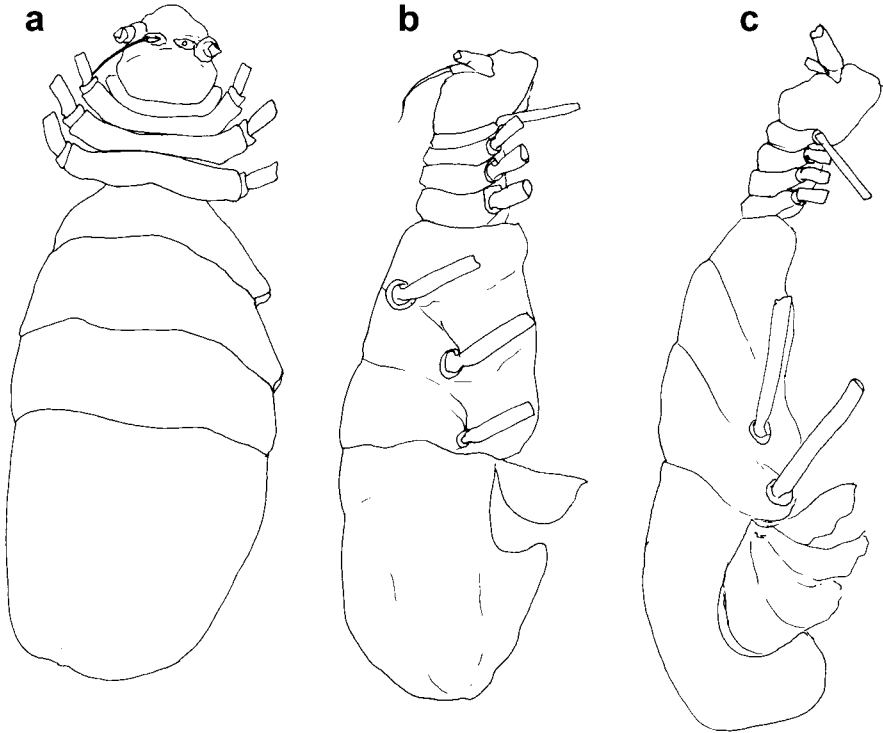
**ABSTRACT.** – An isopod of the subfamily Bathyopsurinae (Munnopsididae) was photographed approaching a bait in 4185 m depth in the Peru Basin (South Pacific) three days after lowering. Judging from the characters and the geographic distribution of the four known species of the Bathyopsurinae, the specimen may belong to the genus *Paropsurus*. Whereas most species of the Munnopsididae are believed to be detritivorous, the images suggest that this specimen is attracted to the bait.

**KEYWORDS:** Deep sea, Pacific Ocean, ecology, Munnopsididae, Bathyopsurinae, *Paropsurus*, *Bathyopsurus*.

#### Introduction

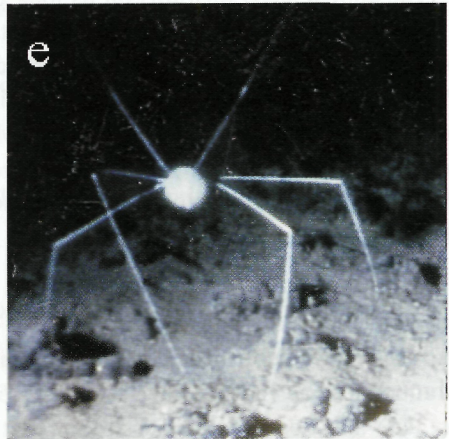
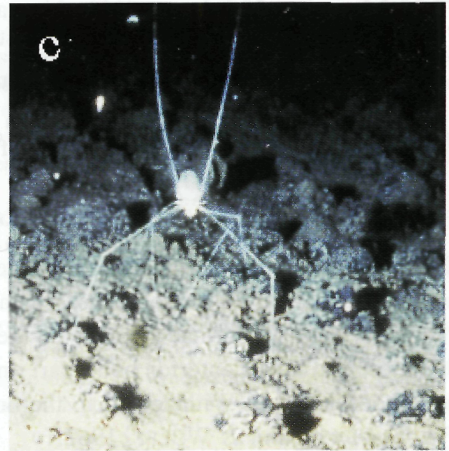
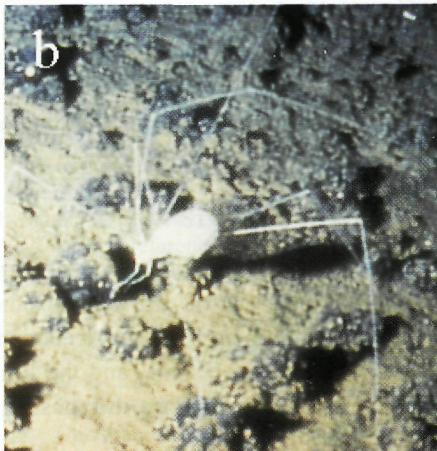
Photographs of deep-sea isopods from the DISCOL 1 Expedition are referred to the asellote family Munnopsididae, subfamily Bathyopsurinae. The Munnopsididae evolved numerous offshoots from a benthic, and a basic swimming type to even a pelagic lifestyle (HESSLER & STRÖMBERG, 1989; WILSON, 1989; MARSHALL & DIEBEL 1995). Although species of the Munnopsididae are quite speciose and frequently found in the deep sea, members of the Bathyopsurinae are rare, and only four species from two genera are known. *Bathyopsurus* NORDENSTAM, 1955 consists of *Bathyopsurus abyssicolus* (BEDDARD, 1885), from off the Azores in 3886 m depth (female holotype of 40 mm), and *Bathyopsurus nybelini* NORDENSTAM, 1955, which ranges from 35-50 mm length and reported from the Puerto Rico Trench (5500-7900 m), the Kermadec Trench (5850-5900 m), and the Tasman Sea (4400 m). *Paropsurus* WOLFF, 1962 consists of *Paropsurus giganteus* WOLFF, 1962, known from off Costa Rica (3570-4400 m) (largest known asellote isopod, 56-60 mm long), and *Paropsurus pellucidus* (BEDDARD, 1885) from off New Guinea (1957 m) (male holotype of 45 mm).

These two genera of the Bathyopsurinae are very similar and the four species are alike in their general morphology. From other munnopsidids they are distinguished by their small anterior body part (head and pereonites 1-4) and the huge posterior body part (pereonites 5-7 and pleotelson, natasoma) (Fig. 1). Species of *Bathyopsurus* and *Paropsurus* differ mainly in the shape of the maxillipeds, and the different lengths of the bases of pereopods 1 and 7, indicating that species of the Bathyopsurinae can only be identified after careful study of collected specimens. Therefore it is not possible to identify the species from these photographs.



**Fig. 1.** Schematic illustrations of Bathyopsurinae. **a**, dorsal view of *Paropsurus giganteus* (after WOLFF, 1962); **b**, lateral view of *Paropsurus giganteus* pencil drawing from photograph (after WOLFF, 1962); **c**, lateral view of *Bathyopsurus nybelini*, pencil drawing from photograph (after WOLFF, 1962).

**Fig. 2.** Photographs of *Paropsurus* sp. taken in 4185 m depth, DISCOL area, Peru Basin. **a**, overview of the site with the prey, and attracted zoarcid fish species, cauliflower shaped manganese nodules and the specimen of *Paropsurus* sp. approaching from the left; **b**, close up of *Paropsurus* sp. showing the short pair of pereopod 1, the animal stands on pereopods 2-4, the long pair of second antennae are held distocaudally into the water column highly above the body; **c**, *Paropsurus* sp. walking, frontal view with both antennae 2 held up, long pereopods 3 and 4 held laterally, long (but slightly shorter pereopods 2) held more in the middle, possibly searching for food, short first pair of pereopods held slightly laterally; **d**, *Paropsurus* sp. bending down to the fish bait (detail in insert); **e**, *Paropsurus* sp. walking away (caudal view), only pereopods 3 and 4 and antennae 2 are discernable.



Since the natasoma of the species is swollen and its integument is quite thin and transparent, this part of the body is usually not preserved very well in the material sampled. All museum material of the described species lacks the long second antennae and some of the pereopods. Therefore, these pictures are very valuable and present some insight into the morphology (length and position of walking legs which were never documented) and lifestyle (obviously the specimen is attracted by the bait and approaches it) of these rare deep-sea asellote isopods. Some of these pictures were already published (THIEL & SCHRIEVER, 1989), but because of its similar habitus the species was provocationally placed in the Arachnida, near the Amblypygi (Pedipalpi).

## Methods

Photographic images were taken at 5 min intervals by a camera mounted on a free-fall lander (FBOS) during the expedition DISCOL 1 (DISturbance and reCOLonisation experiment in a manganese nodule area of the deep South Pacific) with the RV *Somme* (SO 61) in the Peru Basin (Thiel & Schriever, 1989). A fish bait was attached to the tip of a rod, mounted to the support frame.

The station data:

FBOS 3 lowering 20 February 1989, ship station 97, 07°02,07' S, 88°26,32' W, 4185 m.

FBOS 3 recovery 24 February 1989, ship station 106, 07°03,22' S, 88°26,32' W, 4185 m.

The series of photographs (Fig. 2 a-e) were taken on 23 February 1989.

Images of the isopod in the photographs were compared with a specimen of *Paropsurus giganteus* Wolff, 1962 from the collections of the Zoological Museum of Copenhagen.

## Results

On 23 February 1989 an isopod was attracted to fish bait in the DISCOL area from 4185 m and showed up on 20 photographs. It is assumed to be a member of the munnopsidid subfamily Bathypsarinae because of the general body morphology of the specimen: the short and small anterior body part and the large, swollen natasoma, and the long pereopods 3 and 4. With regard to the occurrence of the known species it is possibly *Paropsurus giganteus* WOLFF, 1962.

The animal steps forwards on its long pereopods 2-4 (Fig. 2 a, e). It appears to walk slightly bent down anteriorly, with the natasoma and the pleotelson held higher because pereopods 3 and 4 are longer than pereopods 2, being almost as long as antenna 2. Pereopods 1 appear to search for food in the mud or in crevices of the manganese nodules (Fig. 2 b). The head is bent down while the animal is approaching the bait (Fig. 2 d, see particularly the insert).

Whereas the first pair of antennae is short and cannot be spotted on the photographs, the extremely long pair of antennae 2 are held high above the body (Fig. 2 a, e).

## Discussion

WOLFF (1962) published 21 records of various gut contents of 8 species of the Munnopsididae (particularly regarding *Bathypsurus* and *Paropsurus*; tables 17-19; p. 240) and documented possible predation (e.g., on polychaetes, crustaceans, etc.).

Munnopsididae are also known to be detritivorous (HESSLER & STRÖMBERG, 1989), but also to prey on foraminifers (GUDMUNDSSON & v. SCHMALENSEE, 2000; SVAVARSSON & GUDMUNDSSON, 1993). Until now it was never reported that they might be attracted by bait and possibly scavenge on carcasses. The photographic series illustrates the attraction of this specimen by the bait, or probably by the general disturbance caused by other crustaceans such as amphipods and zoarcid fish gathered around the artificial food fall. It is also interesting to note that the isopod specimen is obviously not preyed upon by the fish *Bassozetus nasus* GARMAN, 1899 (NIELSEN & MERRETT, 2000) and the zoarcids being attracted by the bait as well. The isopod approaches the bait (Fig. 2 a-c), inspects and possibly feeds on it (Fig. 2 d) and walks away (Fig. 2 e).

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