

NOTES AND NEWS

A RARE ABYSSAL SHRIMP, *GALATHEOCARIS ABYSSALIS*, FOUND IN THE STOMACH OF A LANCETFISH

BY

SEINEN CHOW^{1,4}), MAKOTO OKAZAKI¹), MASATSUNE TAKEDA²)
and TADASHI KUBOTA³)

¹) National Research Institute of Far Seas Fisheries, 5-7-1 Orido, Shimizu 424-8633, Japan

²) Department of Zoology, National Science Museum, 3-23-1 Hyakunin-cho, Shinjuku-ku, Tokyo 169-0073, Japan

³) School of Marine Science and Technology, Tokai University, 3-20-1 Orido, Shimizu 424-8610, Japan

The deep-sea, serpent-like fish known as “lancetfish” *Alepisaurus ferox* Lowe, 1833 (fig. 1a) are known to be very voracious feeders, sometimes eating non-living objects or their own kind (Gibbs & Wilimovsky, 1966; Kubota, 1977). As a consequence, many abyssal animals have been obtained from their stomachs (Gibbs & Wilimovsky, 1966; Okutani & Kubota, 1972). On a research cruise of the RV “Shoyo-Maru” (Fisheries Agency, Japan) operating in the eastern Indian Ocean (13-14° S 117-120° E; 2,000-5,000 m depth) in January 1999, we found an unusual shrimp in the stomachs of some lancetfish caught by long-line fishing gear. The peculiar, top-heavy shape (fig. 1b) and the absence of a distinct chela on any of the legs, made us notice that this shrimp must be rather unique. Furthermore, the exopods of all pereopods were extraordinarily long, giving us the impression of “a shrimp with twenty legs”. After a while, we found a paper (Vereshchaka, 1997) describing this deep-sea caridean shrimp as new, from a single female specimen (c. 5 cm long) found in the “Galathea” collection from the Celebes Sea, collected some five decades ago. Based on its morphology, the author (Vereshchaka, 1997) proposed that this new species *Galatheocaris abyssalis* Vereshchaka, 1997 should be located in a new family, Galatheocarididae, or perhaps even in a new superfamily Galatheocaridoidea. Vereshchaka (1997) also proposed that its primitive characteristics, comparable with those of another caridean shrimp, *Procaris* sp. (cf. Felgenhauer & Abele, 1983) could be of value for shedding light on the poorly understood phylogenetic relationships among

⁴) e-mail: chow@enyo.affrc.go.jp

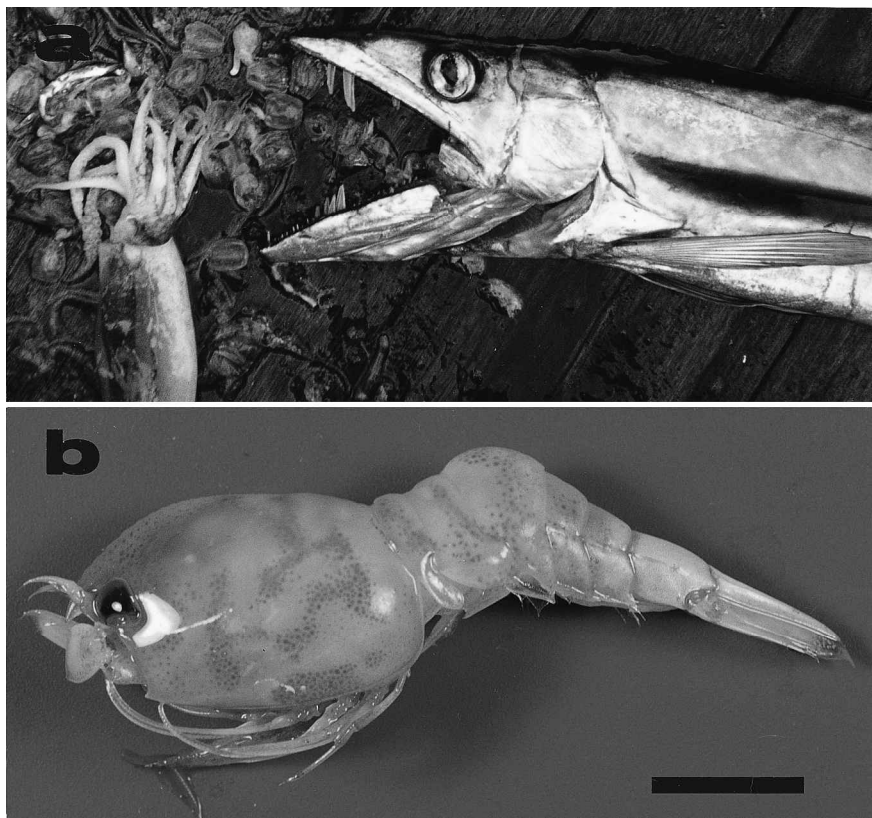


Fig. 1. a, Lateral view of a lancetfish (*Alepisaurus ferox* Lowe, 1833) caught by long-line fishing gear (body length c. 1 m); b, lateral view of the rare abyssal shrimp *Galatheocaris abyssalis* Vereshchaka, 1997 found in stomach contents of lancetfish (scale bar = 1 cm).

caridean shrimps. As the specimen in the “Galathea” collection was caught by a bottom-trawl together with other animals dwelling on or close to the sea floor, it was thought this shrimp was benthopelagic, living close to the bottom (4,500–5,000 m), and swimming with its well-developed exopods. We have now collected a total of 16 *G. abyssalis* (3 to 5 cm in body length), 15 of which came from 5 out of 33 lancetfish stomachs examined, while one was caught with a mid-water trawl net. Our mid-water trawling was performed 13 times during three days, towing stepwise at 200, 100, 50, and 15 m deep, for 15 min. each. The single *G. abyssalis* was caught in a night tow, whereas other deep-water shrimps such as the scarlet shrimp (*Acantheephyra* sp.) were quite often seen, especially in night tows. The oblique hatchetfish (*Sternoptyx* sp.), a meso-pelagic fish, as well as scarlet shrimp were observed in stomachs of lancetfish and bigeye tuna, *Thunnus obesus* (Lowe, 1839). Time-depth recorders attached to long-line hooks indicated that both fish species were hooked at similar depths (160–280 m), but *G. abyssalis*

was found only in the lancetfish, possibly indicating that this shrimp was eaten by the lancetfish in water deeper than the bigeye tuna habitat. Since the long-line hooks were placed at less than 300 m, it is not known how deep the lancetfish could dive. However, considering that the shrimps in the stomach were all fresh, and one shrimp was caught by mid-water trawl, it seems likely that *G. abyssalis* inhabits mid-water and is not benthopelagic. The observation that lancetfish do not bite on deep-sea mooring lines beyond depths of 1,000 m in Bermuda (Turner & Prindle, 1965) may further support this assumption. Although the lancetfish is distributed world-wide (Gibbs & Wilimovsky, 1966), no studies on its stomach contents have reported the occurrence of this shrimp (Haedrich, 1964; Kubota & Uyeno, 1970; Fujita & Hattori, 1976), probably indicating the distribution of this shrimp to be quite restricted. Despite pessimistic perspectives on the likelihood of further collections of this *G. abyssalis* (cf. Vereshchaka, 1997), further attempts of mid-water trawling deeper than 300 m and the lancetfish may provide more specimens, which could shed light not only on the unknown ecology of this rare shrimp, but perhaps also on phylogenetic relationships in caridean shrimps.

Shrimp specimens are deposited to the National Science Museum, Tokyo, and one of the authors (M. Takeda) charges himself with further morphological investigation.

ACKNOWLEDGEMENTS

This manuscript is a by-product of our research cruise for studying reproductive biology and ecology of the southern bluefin tuna, *Thunnus maccoyii* (Castelnaud, 1872), conducted by the Fisheries Agency, Government of Japan. We would like to thank all members of RV "Shoyo-Maru", for their invaluable support during the cruise. Thanks are also due to R. D. Ward, CSIRO, Hobart, for reading the manuscript.

LITERATURE CITED

- FELGENHAUER, B. E. & L. G. ABELE, 1983. Phylogenetic relationships among shrimp-like decapods. In: F. R. SCHRAM (ed.), Crustacean phylogeny. Crustacean Issues, **1**: 291-311.
- FUJITA, K. & J. HATTORI, 1976. Stomach content analysis of longnose lancetfish, *Alepisaurus ferox* in the eastern Indian Ocean and the Coral Sea. Japanese Journ. Ichthyol., **23**: 133-142.
- GIBBS, R. H., JR. & N. J. WILIMOVSKY, 1966. Family Alepisauridae. In: Y. H. OLSEN & J. W. ATZ (eds.), Fishes of the western North Atlantic: 482-497. (Yale University, New Haven, Connecticut).
- HAEDRICH, R. L., 1964. Food habits and young stages of North Atlantic *Alepisaurus* (Pisces, Iniomi). Breviora, **201**: 1-15.
- KUBOTA, T., 1977. Food of lancetfish, *Alepisaurus ferox* Lowe, fished by gill-net in Suruga Bay. Japanese Journ. Faculty mar. Sci. Technol., Univ. Tokai, **10**: 137-146.

- KUBOTA, T. & T. UYENO, 1970. Food habits of lancetfish, *Alepisaurus ferox* in Suruga Bay. Japanese Journ. Ichthyol., **17**: 22-28.
- OKUTANI, T. & T. KUBOTA, 1976. Rare and interesting squid from Japan — I. *Joubiniteuthis portieri* (Joubin, 1912), the first occurrence from the Pacific (Cephalopoda: Oegopsida). Venus, **31**: 35-40.
- TURNER, H. J., JR. & B. PRINDLE, 1965. Some characteristics of "fishbite" damage on deep-sea mooring lines. Limnol. Oceanography, (Suppl.) **10**: R258-R264.
- VERESHCHAKA, A. L., 1997. New family and superfamily for a deep-sea shrimp from the Galathea collections. Journ. Crust. Biol., **17**: 361-373.

First received 9 July 1999.

Final version accepted 29 July 1999.

INTERNATIONAL COMMISSION ON ZOOLOGICAL NOMENCLATURE

The following application dealing with crustacean names was published on 30 September 1999 in vol. 56 part 3 of the Bulletin of Zoological Nomenclature. Comment or advice on this application is invited for publication in the Bulletin and should be sent to the Executive Secretary, International Commission on Zoological Nomenclature, c/o The Natural History Museum, Cromwell Road, London SW7 5BD, U.K. (e-mail: iczn@nhm.ac.uk).

Case 3078. *Diastylis* Say, 1818 (Crustacea, Cumacea): proposed designation of *Cuma rathkii* Krøyer, 1841 as the type species. By Sarah Gerken, Darling Marine Center, University of Maine, Walpole, Maine 04573, U.S.A. (e-mail: sgerke51@maine.edu).

Abstract: The purpose of this application is to designate *Cuma rathkii* Krøyer, 1841 as the type species of the genus *Diastylis* Say, 1818. At present, the nominal species *Diastylis arenarius* Say, 1818 is the type by monotypy but the original material of this species has been lost and it is not identifiable from its description. The name *Diastylis* is used for a large genus and is the basis of the family-group name Diastylidae Bate, 1856. Members of the family, which includes more than 200 species, are found world-wide in temperate latitudes and at all depths below the intertidal zone.

VENTRAL ROSTRAL TEETH IN NORTH ADRIATIC *HOMARUS*
GAMMARUS (LINNAEUS, 1758)

BY

MASSIMO DEVESCOVI and ČEDOMIL LUCU

Institute Ruđer Bošković, Center for Marine Research Rovinj, 52210 Rovinj, Croatia

It is generally known that the American lobster, *Homarus americanus* (H. Milne Edwards, 1837) possesses, as a rule, a rostrum with one or more ventral teeth, where the rostrum of the European lobster, *Homarus gammarus* (Linnaeus, 1758), is generally without teeth (Holthuis, 1991). In 152 North Adriatic *H. gammarus* (collected from Istria, off Rovinj), ventral rostral teeth were found in only 3 cases. Fig. 1 shows 2 ventral teeth on the rostrum of one of these *H. gammarus* specimens. It has been speculated that the European and the American species were derived by isolation from a common ancestor in the Pleistocene (Williams, 1995). Although ventral rostral teeth were never explicitly reported for *H. gammarus* until now, it is expected that this genetic feature incidentally occurs also in *H. gammarus* populations of other areas of European seas.



Fig. 1. *Homarus gammarus* (Linnaeus, 1758). Ventral teeth on the rostrum in a specimen collected from the North Adriatic coast off Rovinj, Istria, Croatia.

REFERENCES

- HOLTHUIS, L. B., 1991. FAO species catalogue. Marine lobsters of the world. An annotated and illustrated catalogue of species of interest to fisheries to date. FAO Fish. Synopsis, **13** (125): 1-292, figs. 1-459.
- WILLIAMS, A. B., 1995. Taxonomy and evolution. In: J. R. FACTOR (ed.), *Biology of the lobster Homarus americanus*: 13-21. (Academic Press, New York).

First received 27 April 1999.
Final version accepted 14 July 1999.

ANNOUNCEMENT

CRUSTACEORUM CATALOGUS

Edited by H.-E. Gruner and L. B. Holthuis

We received the following message from Backhuys Publishers:

Dear Carcinologists,

Much to our regret we have to inform you that for economic reasons the Crustaceorum Catalogus will no longer appear. The number of subscribers became so low that we had to decide to discontinue publication.

The last pars issued was number 8, and all partes released are still available at the following addresses:

Partes 1-6, Antiquariaat Dieter Schierenberg b.v., Zamenhofstraat 150, Unit 320, NL-1022 AG Amsterdam, The Netherlands. Fax: + 31.206362071; e-mail: dieter@schierenberg.demon.nl

Pars 1: L. B. HOLTHUIS, 1967. Stomatopoda I. Fam. Lysiosquillidae et Bathysquillidae: v, 1-28. ISBN 90-6193-516-4.

Pars 2: John C. MCCAIN et JOAN E. STEINBERG, 1970. Amphipoda I. Caprellidea I: 1-80. ISBN 90-6193-517-2.

Pars 3: W. L. SCHMITT, J. C. MCCAIN et E. S. DAVIDSON, 1973. Decapoda I. Brachyura I: 1-160. ISBN 90-6193-518-0.

Pars 4/5: C. W. HART, JR. et DABNEY G. HART, 1975. Ostracoda I. Podocopa I. Fam. Entocytheridae. H. E. GRUNER, Caprellidea II. Fam. Cyamidae: 1-96. ISBN 90-6193-519-9.

Pars 6: J. SIEG, 1983. Tanaidacea: 1-562. ISBN 90-6193-521-0.

Special set price for partes 1-6 NLG (Dutch Guilders) 450.00. Also single partes available, please ask.

Partes 7-8, Backhuys Publishers b.v., Antiquarian Department, P.O. Box 321, NL-2300 AH Leiden, The Netherlands. Fax: + 31.715171856; e-mail: backhuys@backhuys.com

Pars 7: M. BACESCU, 1988. Cumacea I. Fam. Archaeocumatidae, Lampropidae, Bodotriidae, Leuconidae: 1-181. ISBN 90-5103-014-2. NLG 150.00 or US\$ 75.00.

Pars 8: M. BACESCU, 1992. Cumacea II. Fam. Nannastacidae, Diastylidae, Pseudocumatidae, Gynodiastylidae et Ceratocumatidae: 1-297. ISBN 90-5103-078-9. NLG 225.00 or US\$ 125.00.