

## Deep-sea Cumacean Crustaceans (Peracarida) Collected from Pacific Coast of Northern Honshu, Japan

Tadashi Akiyama

Ushimado Marine Laboratory, Okayama University, Ushimado, Okayama, 701-4303, Japan  
E-mail: akiyama@uml.okayama-u.ac.jp

**Abstract:** Deep-sea cumaceans from the Pacific coast of Northern Honshu, Japan, 249-5367 m deep, were collected by the R/V *Soyo-maru*, R/V *Wakataka-maru* and R/V *Tansei-maru* in 1992, and 2005-2007. Twenty-seven species from families Bodotridae, Leuconidae, Nannastacidae, and Diastylidae were identified, among which *Platycuma japonicum* was new to science.

**Key words:** Cumacea, Crustacea, deep-sea, Japan, Northern Pacific.

### Introduction

Relatively little is known about the deep-sea cumacean fauna of the Pacific coast of northern Japan. However, the cumacean fauna of the eastern coast of the Russia, including the Okhotsk Sea, Kamchatka and the Sea of Japan, was well documented by Lomakina (1955, 1958). Calman (1912) reported 10 cumacean species from shallow waters of the Bering Sea, off Alaska and Sakhalin, 7 species of which have also been reported from the sea floor deeper than 200 m (Bacescu, 1988, 1991). From Pacific coast of northern Honshu, Japan, Gamô (1985, 1987, 1988a, b, 1989, 1999) and Harada (1962) reported 15 deep-sea cumacean species, which would comprise only a small portion of the complete fauna of this region.

During the project "Research on Deep-sea Fauna and Pollutants off Pacific Coast of Northern Japan" by Natural Museum of Nature and Science (NSMT), a large number of deep-sea benthic organisms from this region were collected. The present study describes the cumacean specimens from the NSMT collection.

### Materials and Methods

The cumacean specimens examined in this study were collected by the R/V *Wakataka-maru* and R/V *Soyo-maru* of the Fisheries Research Agency (FRA), and the R/V *Tansei-maru* of the Japan Agency for Marine-Earth Science and Technology (JAMSTEC), between 2005 and 2007. Some specimens collected by the R/V *Soyo-maru* in 1992 were also examined. The gears used for the collections were biological dredges and beam trawls of 3 m span. In some collections, small ring nets, 30 cm in diameter, 0.5 mm or 1 mm opening, were attached to the gears to catch small animals including cumaceans. The stations where cumacean specimens examined in the present study were collected are listed in Table 1. The specimens examined are deposited in NSMT.

Table 1. List of the sampling sites. Abbreviations for Haul. no. and Gear: SO, R/V *Soyo-maru*; WA, R/V *Wakataka-maru*; KT, R/V *Tansei-maru*; BT, beam trawl; DG, biological dredge.

Haul. no.	Date	Position in	Position out	Depth (m)	Gear
SO92-St. 5	30 Jun. 1992	41°39.4'N, 142°10.2'E	41°37.7'N, 142°10.7'E	1150-1170	BT
SO07-C7-B	5 Aug. 2007	39°40.6'N, 142°35.2'E	39°39.8'N, 142°33.7'E	815-820	BT
SO07-K1	6 Aug. 2007	38°35.4'N, 143°04.5'E	38°34.0'N, 143°06.9'E	2043-2183	BT
SO07-K2	6 Aug. 2007	38°34.7'N, 143°32.9'E	38°30.6'N, 143°35.6'E	2968-3032	BT
SO07-K3	7 Aug. 2007	38°29.0'N, 143°40.1'E	38°34.3'N, 143°42.5'E	3990-4181	BT
SO07-O1	8 Aug. 2007	36°46.0'N, 141°51.4'E	36°43.8'N, 141°48.1'E	2020-2068	BT
SO07-O3	8 Aug. 2007	36°57.1'N, 142°39.9'E	36°52.4'N, 142°35.7'E	4075-4128	BT
SO07-O4	7 Aug. 2007	37°00.6'N, 142°57.4'E	36°56.3'N, 142°58.9'E	5000-5367	BT
WA05-DE250D	19 Nov. 2005	38°40.6'N, 141°55.3'E	—	249	DG
WA05-FG250D	14 Nov. 2005	37°19.9'N, 141°37.7'E	—	253-255	DG
WA06-DE280D	23 Nov. 2006	38°42.91'N, 141°58.34'E	38°43.12'N, 141°58.37'E	284-285	DG
WA06-E1200D	2 Nov. 2006	38°19.25'N, 142°31.74'E	38°19.36'N, 142°31.65'E	1213-1214	DG
WA06-EF425D	21 Nov. 2006	38°03.26'N, 142°03.97'E	38°03.12'N, 142°04.25'E	420-424	DG
WA06-F1500D	1 Nov. 2006	37°34.64'N, 142°33.47'E	37°39.39'N, 142°34.32'E	1466-1511	DG
WA06-G900D	11 Nov. 2006	36°47.53'N, 141°39.39'E	36°47.32'N, 141°39.14'E	920-925	DG
WA06-H1500D	15 Nov. 2006	36°36.45'N, 141°36.21'E	36°36.66'N, 141°36.14'E	1450-1470	DG
KT07-29-H1	8 Nov. 2007	40°48.70'N, 142°00.05'E	40°47.36'N, 142°00.49'E	454-97	BT
KT07-29-H2	8 Nov. 2007	40°00.00'N, 143°31.37'E	41°00.76'N, 143°30.25'E	2032-2055	BT
KT07-29-M1	5 Nov. 2007	39°17.86'N, 142°28.40'E	39°16.80'N, 142°27.37'E	1039-1041	BT
KT07-29-M2	5 Nov. 2007	39°16.20'N, 142°41.07'E	39°18.62'N, 142°43.73'E	1528-1603	BT
KT07-29-M3-1	5 Nov. 2007	39°20.04'N, 142°50.99'E	39°21.75'N, 142°51.90'E	1719-1728	BT
KT07-29-M3-2	6 Nov. 2007	39°20.19'N, 142°51.40'E	39°19.23'N, 142°49.18'E	1709-1737	BT
KT07-29-M3-3	8 Nov. 2007	39°20.09'N, 142°51.17'E	39°19.23'N, 142°49.05'E	1733-1695	BT

## Taxonomy

Family Lampropidae Sars, 1878

Genus *Hemilamprops* Sars, 1883

*Hemilamprops* sp.

*Material examined.* SO07-K3 (2♂, 1♀, 3 juv.), NSMT-Cr 19749.

Family Bodotriidae Scott, 1901

Subfamily Bodotriinae Scott, 1901

Genus *Cyclaspoides* Bonnier, 1896

*Cyclaspoides* sp.

*Material examined.* KT07-29-H2 (3♀, 4 juv.), NSMT-Cr 19750.

*Remarks.* Three known species of the genus, *Cyclaspoides sarsi* Bonnier, 1896, *C. pellucidus* Day, 1978 and *C. bacescui* Petrescu, 1995, have been reported from, respectively, the deep Atlantic, 698-4934 m depth; off South Africa, 400 m depth; and from the eastern Pacific, off Ecuador, 1892 m depth. The Japanese specimens are similar to *C. sarsi*.

Subfamily Vaunthompsoniinae Sars, 1878

Genus *Bathycuma* Hansen, 1895

*Bathycuma granulatum* Gamô, 1989

*Bathycuma granulatum* Gamô, 1989: 11-17, figs. 1-3.

*Material examined.* SO07-K3 (2♂, 3 juv., 3 manca), NSMT-Cr 19751; SO07-K2 (1 juv.), NSMT-Cr 19752; SO07-O4 (1♀), NSMT-Cr 19753.

*Distribution.* Pacific coast of northern Honshu, 2968-6416 m depth.

***Bathycuma declinatum* Gamô, 1989**

*Bathycuma declinatum* Gamô, 1989: 17-23, figs. 4-6.

*Material examined.* SO07-K3 (2 juv.), NSMT-Cr 19754.

*Distribution.* Off Kinkazan, Pacific coast of northern Honshu, 3990-6416 m.

Family Leuconidae Sars, 1878

Genus *Leucon* Kröyer, 1846

Subgenus *Leucon* Kröyer, 1846

***Leucon (Leucon) armatus* Given, 1961**

*Leucon armatus* Given, 1961: 136-139, fig. 35A-D.

*Material examined.* KT07-29-H2 (2♀, 1 juv.), NSMT-Cr 19755.

*Distribution.* California, Pacific eastern coast, Pacific coast of northern Honshu, 186-2055 m.

***Leucon (Leucon) kobjakovae* Lomakina, 1955**

*Leucon kobjakovae* Lomakina, 1955: 241-243, fig. 157.

*Leucon (Leucon) kobjakovae*: Bacescu, 1988: 155.

*Material examined.* KT07-29-H1 (40♀, 70 juv.), NSMT-Cr 19756.

*Distribution.* Okhotsk Sea, Kamtcatka, the Sea of Japan, Pacific coast of northern Honshu, 48-497 m.

***Leucon (Leucon) sp. 1***

*Material examined.* WA05-DE250D (15♀, 10 juv.), NSMT-Cr 19757; WA06-DE250D (2♀, 1 juv., 1 manca), NSMT-Cr 19758.

*Remarks.* Carapace of the specimens have a curved ridge, which is also present in *Leucon (Leucon) kobjakovae* and *L. (L.) falcicosta* Watling and MacCann, 1997 from the eastern Pacific, 90-161 m (Watling and MacCann, 1997). However, the specimens are distinguished from the latter two species by a more upturned pseudorostrum.

***Leucon (Leucon) sp. 2***

*Material examined.* SO07-C7-B (1♂, 24♀, 17 juv., 3 manca), NSMT-Cr 19759.

*Remarks.* The specimens resemble *Leucon (Leucon) robustus* Hansen, 1920 from the North Atlantic, 1000-2624 m, in having a few spines on the side of the frontal lobe of carapace. However, the former is distinguished from the latter by the shape of some appendages, including antenna 1.

Subgenus *Epileucon* Jones, 1956  
*Leucon (Epileucon) tenuirostris* Sars, 1887

*Leucon tenuirostris* Sars, 1887: 38-40, pl. 5, figs. 1-4.

*Epileucon tenuirostris*: Bishop, 1981: 395-397, fig. 18.

*Leucon (Epileucon) tenuirostris*: Bacescu, 1988: 171.

*Material examined.* SO07-K2 (1♀), NSMT-Cr 19760.

*Distribution.* North Pacific, North Atlantic, Argentina, Angola, northern Japan, 1456-4980 m.

Genus *Eudorella* Norman, 1867  
*Eudorella dentata* Lomakina, 1955

*Eudorella dentata* Lomakina, 1955: 120-122, figs. 20-22; Lomakina 1958: 226-229, fig. 145.

*Material examined.* KT07-29-M1 (1 juv.), NSMT-Cr 19761.

*Distribution.* Okhotsk Sea, Bering Sea, Kamtchatka and the Kuriles, Pacific coast of northern Honshu, 45-1041 m.

*Eudorella emarginata* (Kröyer, 1846)

*Leucon emarginatus* Kröyer, 1846: 181, 209, 211, pl. 2, fig. 3a-h.

*Eudorella emarginata*: Norman, 1867: 194, 197; Sars, 1900: 36, pl. 27-28.

*Material examined.* WA06-E1200D (4♀, 1 juv.), NSMT-Cr 19762; WA06-H1500D (1♀, 2 juv.), NSMT-Cr 19763; SO07-O1 (3♂, 3♀, 8 juv.), NSMT-Cr 19764; SO07-K1 (1♂, 1♀, 11 juv., 10 manca), NSMT-Cr 19765; KT07-29-H2 (1♂, 2♀, 34 juv., 17 manca), NSMT-Cr 19766; KT07-29-M1 (9 manca), NSMT-Cr 19767; KT07-29-M2 (8♂, 9♀, 87 juv., ca. 700 manca), NSMT-Cr 19768; KT07-29-M3-2 (2♂, 1♀, 30 juv., 102 manca), NSMT-Cr 19769.

*Distribution.* Circum Arctic region, Alaska, Pacific coast of northern Honshu, 0-2000 m.

? *Eudorella hispida* Sars, 1871

*Eudorella hispida* Sars, 1871: 49, pl. 18 fig. 95-97; Stebbing, 1913: 79; Hansen, 1920: 23-24, pl. 1, fig. 8a.

*Material examined.* SO07-K1 (1♂, 1♀, 8 juv., 3 manca), NSMT-Cr 19770.

*Remarks.* The specimens are similar to *Eudorella hispida* from the Atlantic, 2-1096 m, However, a row of several stiff setae on each side of the carapace of the specimens examined in the present study have not been reported in the previous studies on this species.

? *Eudorella pacifica* Hart, 1930

*Eudorella pacifica* Hart, 1930: 28-30, fig. 2; Barnard and Given, 1961: 160-163; Watling and MacCann, 1997: 155-156, fig. 2.20; Hong and Park, 1999: 451-457, figs. 5-9.

*Material examined.* KT07-29-M1 (3♀, 13 juv.), NSMT-Cr 19771; KT07-29-M2 (1♂, 11♀, 11 juv.), NSMT-Cr 19772.

*Remarks.* *Eudorella pacifica* has been reported from both shallow and deep waters of the northeastern and northwestern Pacific. Previous studies reported considerable intra-specific

variation (Barnard and Given, 1961; Watling and MacCann, 1997). The taxonomic status of this species therefore requires further clarification. Although the specimens from northern Honshu are similar to this species, further research on specimens collected from other localities and depths is required.

*Eudorella* sp.

*Material examined.* WA-05-DE250D (2♂, 59♀, 16 juv.), NSMT-Cr 19773; WA06-DE250D (1♂, 77♀, 259 juv., 719 manca), NSMT-Cr 19774; WA06-DE280D (2♂, 394♀, 14 juv.), NSMT-Cr 19775.

*Remarks.* The specimens are similar to *Eudorella pusilla* Sars, 1871 from the North Atlantic, 2–256 m, but are distinguishable from the latter by the pointed posterior end of the last abdominal segment.

Genus *Eudorellopsis* Sars, 1882  
*Eudorellopsis biplicata* Calman, 1912

*Eudorellopsis biplicata* Calman, 1912: 625–626, figs. 25–26.

*Material examined.* WA05-DE250D (2♀, 3 juv.), NSMT-Cr 19776; WA06-DE250D (9♀, 5 juv., 32 manca), NSMT-Cr 19777; WA06-DE280D (22♂, 45♀, 29 juv.), NSMT-Cr 19778.

*Distribution.* North Pacific and the North Atlantic, 20–1514 m.

*Eudorellopsis integra* (Smith, 1879)

*Eudorella integra* Smith, 1879: 116.

*Eudorellopsis integra*: Hansen, 1887: 201–203, fig. 3a–d; Calman, 1912: 624; Lomakina, 1958: 209–211, fig. 127.

*Material examined.* KT07-29-M2 (12♂, 14♀, 25 juv., 49 manca), NSMT-Cr 19779; KT07-29-M3-1 (1♂, 4♀), NSMT-Cr 19780; KT07-29-M3-2 (1♂, 2♀, 1 juv., 10 manca), NSMT-Cr 19781.

*Distribution.* West Atlantic, Bering Sea and Okhotsk Sea, Pacific coast of northern Honshu, 1.5–1737 m.

*Remarks.* Japanese specimens are characterized by well defined antero-lateral corner of the carapace, and by a stout spine on the dorsal crest of the carapace in some specimens.

*Eudorellopsis uschakovi* Lomakina, 1955

*Eudorellopsis uschakovii* Lomakina, 1955: 129–130, figs. 27–29.

*Material examined.* KT07-29-M2 (1♂, 1♀, 5 juv., 5 manca), NSMT-Cr 19782; KT07-29-M3-2 (3♂, 6♀, 14 manca), NSMT-Cr 19783; KT07-29-M3-3 (5♂, 8♀, 1 juv., 8 manca), NSMT-Cr 19784.

*Distribution.* Okhotsk Sea, Pacific coast of northern Honshu, 85–1733 m.

Family Nannastacidae Bate, 1866

Genus *Platycuma* Calman, 1905

*Platycuma japonicum* sp. nov.

(Figs. 1-2)

*Material examined.* Holotype: NSMT-Cr 19785, ovigerous female, length 3.3 mm, off Kinkazan, 2043-2183 m, 38°33.2'N, 143°4.1'E-38°34.0'N, 143°6.9'E, 6 August, 2007 (SO07-K1). Paratypes: NSMT-Cr 19786, 1 preparatory female (dissected, length 3.4 mm), 7 juveniles, length 2.4-2.7 mm, off Miyako, 1700-1733 m, 39°20.1'N, 142°51.2'E-39°19.2'N, 142°49.1'E (KT07-29-M3-3).

*Description.* Females (no males observed). Body (Figs. 1A, 2A) white, weakly calcified, with few hairs. Carapace (Figs. 1A-B, 2A-B) very smooth, length 0.4 times total length of body, and as long as width, which is 1.5 times dorsoventral depth. Eye lobe very small; antennal notch shallow, with a tooth at the lower end. Carapace with 4 teeth on anterior portion of lower margin. Side of carapace elongated posteriorly, covering 1st and 2nd pleonite.

Pereon (Figs. 1A-B, 2A-B) very short, 5th segment with 2 serrated dorsal keels. Pleon (Figs. 1A, 2A) slightly shorter than half of total body length; 1-5th segments with 2 rows of dorsal keels pointed posteriorly; 2-4th segments subequal in length each other, shorter than the 5th; last segment not protruding between uropods (Fig. 1P).

Antenna 1 (Fig. 1C) with 2 long simple setae on peduncle. First segment of peduncle longer than 2nd, which is slightly longer than 3rd; 3-segmented main flagellum shorter than 3rd segment of peduncle; accessory flagellum minute. Antenna 2 (Fig. 1D) with 3 plumose setae on distal margin. Labium (Fig. 1E) with 4 teeth on distal margin. Right mandible (Fig. 1F) boat shaped, with 7 plumose setae on inner border. Maxilla 1 (Fig. 1G) with 2 filaments on palp. Maxilla 2 (Fig. 1H) normal. Maxilliped 1 (Fig. 1I) with 2 branchial lobules. Maxilliped 2 (Fig. 1J). Basis broad, slightly shorter than distal segments combined, with 2 plumose setae on distal end; carpus and propodus each with 3 simple setae on inner border. Maxilliped 3 (Fig. 1K). Basis slightly shorter than the distal segments combined, and with 6 plumose setae on distal end; propodus curved, with 3 simple setae on inner border.

Pereopod 1 (Fig. 1L). Basis 0.8 times the distal segments together, almost naked on inner and outer border; carpus subequal in length to propodus and twice as long as dactylus. Pereopod 2 (Fig. 1M). Basis as long as distal segments combined; dactylus much longer than carpus. Pereopod 3 (Fig. 1N). Basis slightly shorter than distal segments together; carpus 2.5 times as long as merus. Pereopod 4 (Fig. 1O). Basis 0.8 times as long as distal segments combined; carpus elongated, 3.4 times as long as merus, 0.7 times as long as basis. Pereopod 5 absent.

Uropod (Fig. 1P) as long as combined length of last 3 pleonites. Peduncle 2.2 times the last pleonite and 1.8 times as long as exopod, with 4 minute setae on inner border; exopod subequal in length to uni-articulated endopod, with 1 simple seta on the inner border and 2 simple setae on distal end; dorsal surface of exopod with a simple seta. Single segmented endopod with 4 robust setae on distal end and with several auditory hairs on dorsal surface.

*Etymology.* The species name refers to the Japanese type locality.

*Remarks.* All 5 known species of the genus, *Platycuma holti*, *P. marginata*, *P. sandersi*, *P. hessleri*, and *P. candida*, have been hitherto reported from deep waters in the Atlantic (Calman, 1905; Zimmer, 1943, 1980; Jones, 1973, 1984). In the present new species, the shape of the carapace, with its lateral surface elongated posteriorly, and the absence of a 5th pereopod, are unique in the genus. *Platycuma japonicum* is similar to *P. sandersi* in the dorsal keels of the abdomen and the shape of the appendages, but is distinguished from the latter by the characters mentioned above. The genus *Platycuma* is mostly characterized by a coiled anterior gut. In the ovigerous

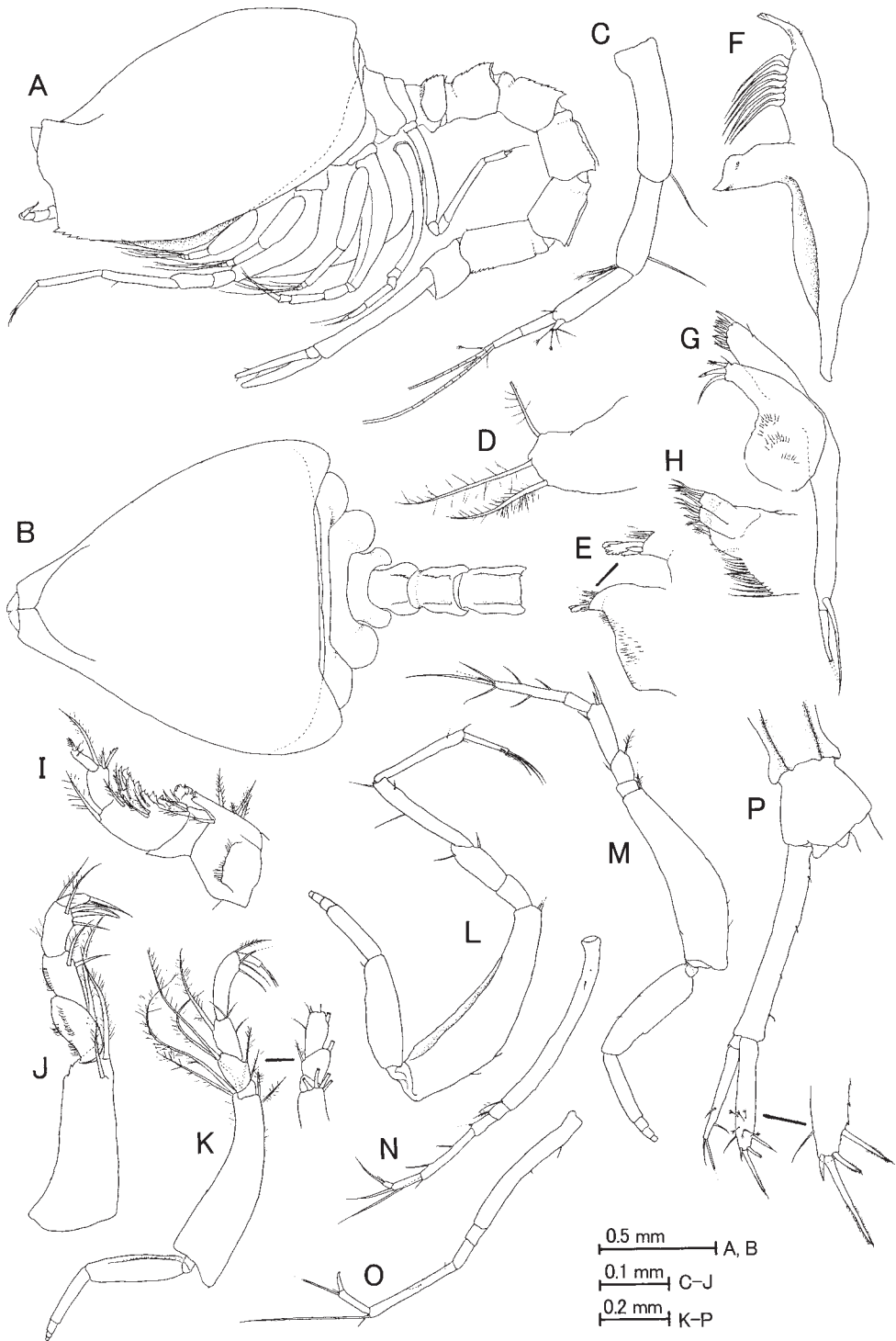


Fig. 1. *Platycuma japonicum* sp. nov. A-B, holotype ovigerous female (length 3.3 mm; NSMT-Cr 19785); C-P, paratype preparatory female (length 3.4 mm; NSMT-Cr 19786). A, habitus, lateral view; B, anterior portion of body, dorsal view; C, antenna 1; D, antenna 2; E, right mandible; F, maxilla 1; G, maxilla 2; H, laburum; I-K, maxillipeds 1-3; L-O, pereopods 1-4; P, uropod with last abdominal segment.

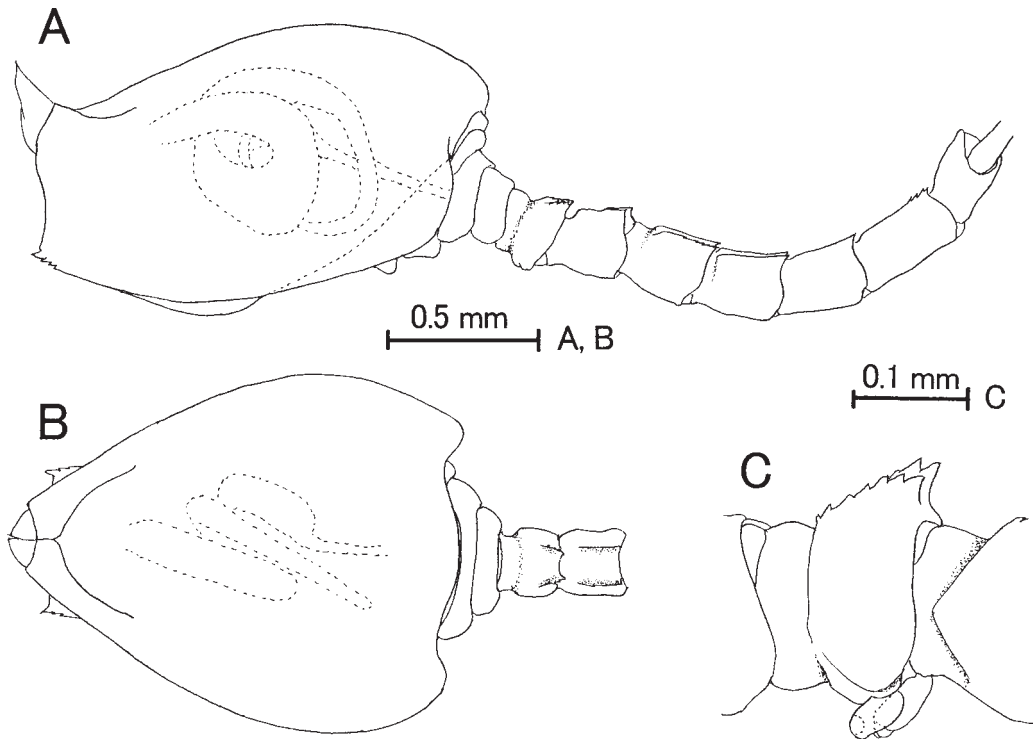


Fig. 2. *Platycuma japonicum* sp. nov. A-B, paratype preparatory female (length 3.4 mm; NSMT-Cr 19786); C, paratype juvenile (length 2.4 mm; NSMT-Cr 19786). A, habitus, lateral view; B, anterior portion of body, dorsal view; C, 5th pleonite with rudimentary pereopods 5, lateral view.

female, the large marsupium has compressed the gut region so that the alignment of the gut is not easily observable, but the preparatory female (Fig. 2A-B) shows a clearly coiled gut. Among the materials, a juvenile specimen has rudimentary 5th pereopods (Fig. 2C).

Family Diastylidae Bate, 1856  
 Genus *Diastylis* Say, 1818  
*Diastylis bidentata* Calman, 1912

*Diastylis bidentata* Calman, 1912: 637-640, figs. 45-49.

*Material examined.* WA05-DE250D (23♀, 9 juv.), NSMT-Cr 19787; WA06-DE250D (1♀), NSMT-Cr 19788; WA06-DE280D (1♂, 15♀, 45 juv.), NSMT-Cr 19789; WA06-EF425D (2♀), NSMT-Cr 19790.

*Distribution.* Alaska, Okhotsk Sea, the Sea of Japan, Bering Sea, Pacific coast of northern Honshu, 4-1000 m.

*Diastylis ornata* Lomakina, 1952

*Diastylis ornata* Lomakina, 1952: 167-168, figs. 21-22; Lomakina, 1958: 138-140, fig. 78.

*Material examined.* WA05-DE250D (2♀, 3 juv.), NSMT-Cr 19791; WA05-FG250D (1 juv.), NSMT-Cr 19792; WA06-DE280D (1♀), NSMT-Cr 19793.



*Distribution.* Okhotsk Sea, Pacific coast of northern Honshu, 83–285 m.

***Diastylis samurai* Zimmer, 1943**

*Diastylis samuraii*, Zimmer, 1943: 133, figs. 1–3; Gamô, 1968: 149–150, Fig. 22.

*Material examined.* SO92-st. 5 (1♂, 7♀, 4 juv.), NSMT-Cr 19794; WA06-F1500D (1♂, 2♀), NSMT-Cr 19795; WA06-H1500D (2♀), NSMT-Cr 19796.

*Distribution.* Off Hokkaido, Pacific coast of northern Japan, 320–1511 m.

***Diastylis* sp.**

*Material examined.* SO92-st. 5 (8♀, 1♂, 9 juv.), NSMT-Cr 19797; SO07-C7-B (2 juv., 4 manca), NSMT-Cr 19798; SO07-K1 (1 juv., 4 manca), NSMT-Cr 19799.

*Remarks.* This species is related to *Diastylis ornata* in having an integument with numerous spinules and 2-segmented uropod endopod, but is distinguished from the latter in lacking a row of stout spines on the side of the carapace.

Genus ***Makrokylindrus*** Stebbing, 1912

Subgenus ***Makrokylindrus*** Stebbing 1912

***Makrokylindrus (Makrokylindrus) omorii* (Gamô, 1968)**

*Diastylis omorii* Gamô, 1968:157–161, figs. 26–27.

*Makrokylindrus (Makrokylindrus) omorii*: Bacescu, 1991: 352.

*Material examined.* WA06-F1500D (7♀, 1 juv.), NSMT-Cr 19800; WA06-G900D (2♀), NSMT-Cr 19801; SO07-K3 (1♀, 1♂, 2 manca), NSMT-Cr 19802.

*Distribution.* Sagami Bay, Pacific coast of northern Honshu, about 920–4181 m.

***Makrokylindrus (Makrokylindrus) utinomii* (Gamô, 1968)**

*Diastylis utinomii* Gamô, 1968: 163–170, figs. 29–32.

*Makrokylindrus (Makrokylindrus) utinomii*: Bacescu, 1991: 352–353.

*Material examined.* SO07-K2 (1♂, 8 juv.), NSMT-Cr 19803; SO07-K3 (2 juv., 4 manca), NSMT-Cr 19804; SO07-O3 (3 manca), NSMT-Cr 19805.

*Distribution.* Sagami Bay, Pacific coast of northern Honshu, 1000–4128 m.

Genus ***Diastyloides*** Smith, 1900

**?*Diastyloides* sp.**

*Material examined.* WA05-DE250D (2♂, 13♀), NSMT-Cr 19806.

*Remarks.* The female specimens agree with the characteristics of the genus *Diastyloides*. However, the absence of pleopods in males, and mandibles which are narrow at the base, are in disagreement with the diagnosis of the genus (Sars, 1900).

Genus *Leptostylis* Sars, 1869  
*Leptostylis* sp.

*Material examined.* SO07-K2 (10♀, 4♂), NSMT-Cr 19807.

Genus *Brachydiastylis* Stebbing, 1912  
*Brachydiastylis resima* (Krøyer, 1846)

*Diastylis resima* Krøyer, 1846: 165-170, pl. 2, fig. 2.

*Diastylopsis resima*: Stebbing, 1893: 311; Sars, 1900: 65-67, pl. 47; Calman, 1912: 666.

*Brachydiastylis resimus*: Stebbing, 1913: 107-108, figs. 62-65.

*Brachydiastylis resima*: Hansen, 1920: 69; Lomakina, 1958: 162-164, Fig. 95.

*Material examined.* KT07-29-M2 (1♀, 2 juv., 3 manca), NSMT-Cr 19808; KT07-29-M3-2 (9 manca), NSMT-Cr 19809; KT07-29-M3-3 (1♀, 2 juv., 2 manca), NSMT-Cr 19810.

*Distribution.* Arctic, Pacific coast of Northern Honshu, 6-1733 m.

*Remarks.* Japanese specimens are characterized by the presence of 1 prominent tooth on the antero-lateral corner of the carapace, and a pair of stout spines projecting backward at the posterior end of pereonite 5.

### Acknowledgements

I thank the captains and crews of the R/V *Wakataka-maru*, R/V *Soyo-maru*, and R/V *Tansei-maru* for their help in many ways. I also thank Drs. T. Kubodera, H. Komatsu, H. Saito, T. Fujita, K. Hasegawa, and other staff members of the Natural Museum of Nature and Science, for their cooperation in sampling. Thanks are due to Dr. S. Kojima, Director of the R/V *Tansei-maru* cruise (KT-07-29), for facilitating this work.

### References

- Bacescu, M., 1988. Cumacea I (Fam. Archaeocumatidae, Lampropidae, Bodotriidae, Leuconidae). *Crustaceorum Catalogus*, **7**: 1-173.
- Bacescu, M., 1991. Cumacea II (Fam. Nannastacidae, Diastylidae, Pseudocumatidae, Gynodiastylidae et Ceratocumatidae). *Crustaceorum Catalogus*, **8**: 178-468.
- Barnard, L. and R. Given, 1961. Morphology and ecology of some sublittoral cumacean Crustacea of the southern California. *Pacific Naturalist*, **2**: 153-165.
- Bishop, J. D. D., 1981. A revised definition of the genus *Epileucon* Jones (Crustacea, Cumacea), with descriptions of species from the deep Atlantic. *Philosophical Transactions of the Royal Society of London, Series B (Biological Sciences)*, **291**: 353-409.
- Bonnier, J., 1896. Edriophthalmes. Résultats scientifique de la campagne du Caudan dans le golfe de Gascogne. Août-Sept., 1895. *Annales de l'Université de Lyon*, **3**: 530-560.
- Calman, W. T., 1905. The Marine Fauna of the west coast of Ireland, Part V. Cumacea. *Scientific Investigations. Department of Agriculture and Technical Instruction for Ireland. Fisheries Branch*, **1904**: 3-52.
- Calman, W. T., 1912. The Crustacea of the order Cumacea in the collection of the United States National Museum. *Proceedings of the United States National Museum*, **41**: 603-676.
- Day, J., 1978. South african Cumacea Part 2. Family Bodotriidae, subfamily Bodotriinae. *Annals of the South African Museum*, **75**, 7: 159-290.
- Gamô, S., 1968. Study of the Cumacea (Crustacea, Maracostraca) of Japan. Part III. *Publications of the Seto Marine Biological Laboratory*, **16**: 147-192.
- Gamô, S., 1985. *Makrokylindrus (Makrokylindrus) histrix* sp. nov. and *Leptostylis quadridentata* sp. nov., two new abyssal cumaceans from Japan Trench (Crustacea). *Science Reports of the Yokohama National University, Section II (Biological and Geological Sciences)*, **32**: 1-10.

- Gamô, S., 1987. Two new cumacean Crustaceans, *Paraleucon? ultraabyssais* sp. nov. and *Leptostylis? spinescens* sp. nov. from the Japan Trench. *Bulletin of the Biogeographical Society of Japan*, **42**: 43-48.
- Gamô, S., 1988a. Four new deep-sea cumacean crustaceans from Japanese waters. *Science Reports of the Yokohama National University*, Section II (Biological and Geological Sciences), **35**: 1-21.
- Gamô, S., 1988b. A new abyssal cumacean crustacean, *Leucon stenorhynchus* sp. nov. (Leuconidae) from Japan Trench. *Bulletin of the Biogeographical Society of Japan*, **43**: 25-28.
- Gamô, S., 1989. Four new species of deep-sea Cumacea (Crustacea) from Japan Trench. *Science Reports of the Yokohama National University*, Section II (Biological and Geological Sciences), **36**: 11-33.
- Gamô, S., 1999. *Hemilamprops eminens* and *Mesolamprops bacescui*, two new lamprodid cumacean crustaceans from Japanese waters. *Bulletin of the National Science Museum*, Series A (Zoology), **25**: 243-257.
- Given, R. R., 1961. The cumacean fauna of the southern California continental shelf. I. The family Leuconidae. *Bulletin of the Southern California Academy of Science*, **60**: 130-146.
- Hansen, H. J., 1887. Malacostraca marina Groenlandiae occidentalis, VI. Cumacea. *Videnskabelige Meddelelser fra Dansk naturhistorisk Forening i Kjøbenhavn*, **9**: 198-209.
- Hansen, H. J., 1920. Crustacea Malacostraca 4. *Danish Ingolf-Expédition*, **3**(6): 1-86, 4 pls.
- Harada, I., 1962. Cumacean Malacostraca in the collection of the Japanese expedition of Deep Sea. *Annotations Zoologicae Japonenses*, **35**: 170-175.
- Hart, J. F. L., 1930. Some Cumacea of the Vancouver Island region. *Contributions to Canadian Biology and Fisheries*, New Series, **6**: 25-40.
- Hong, J.-S. and M. Park, 1999. The genus *Eudorella* (Crustacea: Cumacea) from the Yellow Sea, with description of a new species. *Journal of Marine Biological Association of United Kingdom*, **79**: 445-457.
- Jones, N. S., 1973. Some new Cumacea from deep water in the Atlantic. *Crustaceana*, **25**: 19-319.
- Jones, N. S., 1984. The family Nannastacidae (Crustacea: Cumacea) from the deep Atlantic. *Bulletin of the British Museum (Natural History)*, Zoology Series, **46**: 207-289.
- Kröyer, H., 1846. Carcinologische bidrag. *Naturhistorisk Tidsskrift*, Series 2, **2**: 123-211.
- Lomakina, N. B., 1952. New species of Cumacea of Far-East Seas. *Trudy Zoologicheskogo Instituta Academia Nauka SSSR*, **12**: 155-170. (In Russian.)
- Lomakina, N. B., 1955. Cumacea from Far-East Seas. *Trudy Zoologicheskogo Instituta Academia Nauka SSSR*, **18**: 112-165. (In Russian.)
- Lomakina, N. B., 1958. Cumacea of the seas of the SSSR. *Opredelitel' po faune SSSR*, **6**: 1-301. (In Russian.)
- Norman, A. M., 1867. Report of the committee appointed for the purpose of exploring the coasts of the Hebrides by means of the dredge. Part II. On the Crustacea, Exhinozoa, Polyzoa, Actinozoa, and Hydrozoa. *Report of the Thirty-Sixth Meeting of the British Association for the Advancement of Science (1864)*, (36): 193-206.
- Petrescu, I., 1995. Cumaceans (Crustacea: Peracarida) from the south American coasts collected by the R/V "Vema". *Travaux du Museum national d'Histoire Naturelle "Grigore Antipa"*, **35**: 49-86.
- Sars, G. O., 1871. Beskrivelse af de paa fregatten Josephines expedition funde Cumaceer. *Kongl Svenska Vetenskaps-Akademiens Handlingar*, **9**: 1-57.
- Sars, G. O., 1878. Middelhavets Cumaceer. *Archiv for Mathematik og Naturvidenskab*, **3**: 461-512.
- Sars, G. O., 1887. Report on the Cumacea collected by H. M. S. *Challenger* during the year 1873-76. *Report on the Scientific Results of the Voyage of the H. M. S. Challenger During the Years 1873-1876 under the Command of George S. Nares and Frank Tourle Thomson*, **19**: 1-73.
- Sars, G. O., 1900. Cumacea. *An account of the Crustacea of Norway*, **3**: 1-115.
- Smith, S. I., 1879. The stalked-eyed crustaceans of the Atlantic coast of North America north of Cape Cod. *Transactions of the Connecticut Academy of Arts and Science*, **5**: 28-138.
- Stebbing, T. R. R., 1893. Chapter XX. Order II. Edriophthalma. Sub-order 1. Cumacea. In: Stebbing, T. R. R. (ed.), *A History of Crustacea/Recent Malacostraca*. *International Science Series, No. 71*, pp. 291-313. D. Appleton and Company, New York.
- Stebbing, T. R. R., 1913. Cumacea (Symphoda). Das Tierreich im Auftrage der Königl. Preuß. Akademie der Wissenschaften zu Berlin, 39 Crustacea. 210 pp. R. Friedländer und Sohn, Berlin.
- Watling, L. and L. D. MacCann, 1997. Cumacea. *Taxonomic atlas of the benthic fauna of the Santa Maria Basin and Western Santa Barbara Channel*, **11**: 121-180.
- Zimmer, C., 1943. Über neue und weniger bekannte Cumaceen. *Zoologischer Anzeiger*, **141**: 147-167.
- Zimmer, C., 1980. Cumaceans of the American Atlantic boreal coast region (Crustacea: Peracarida). *Smithsonian Contribution to Zoology*, **302**: 1-29.