

A new species of *Bathymedon* Sars, 1892 (Amphipoda: Oedicerotidae) from the western Mediterranean bathyal floor*

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SUMMARY: *Bathymedon longirostris* sp. nov. (Amphipoda: Oedicerotidae) from the western Mediterranean bathyal suprabenthos is described. It is characterised by the well-developed rostrum; the discrete lateral lobe of head; the elongation of the peduncle segment 3 of the first antenna; the very slender propodus of the second gnathopod, which attains maximum width not at the palm angle, but at about midway along the palm margin; and by the relative length of the carpus of the fore-going limb, sub-equal to propodus. The discovery of a tiny remnant of the 2nd peduncle segment of the first antenna in the new species is commented with regard to the homologation of the peduncle segments in other members of the Family. The new taxon was captured below 593 m over muddy bottoms with pteropod shells and remains of planktonic foraminiferans. It was one of the most common amphipods in the lower slope (below ~ 1000 m), whereas in the depth range comprised between 1250 and 1859 m it was the second dominant species, representing 11.4 % of the total gammarideans captured. The area studied harbours three additional congeneric species, although their populations are mainly concentrated in the upper and middle slope. Over the bottom, adult males of the new species apparently tend to occupy higher levels beyond the water-sediment interface than the rest of demographic categories. The gut content of three individuals revealed a bulk of calcified foraminiferans, a diet in consonance with their massive mandibles. Juvenile individuals were more abundant in winter, whereas adult individuals were clearly dominant in summer, thus suggesting the biological cycle of the species follows some type of periodicity.

Key words: Amphipoda, Oedicerotidae, *Bathymedon*, taxonomy, ecology, deep-sea, benthic boundary layer, Mediterranean.

INTRODUCTION

Oedicerotids are burrowing amphipods characteristic of soft sediments, with a dorsoventrally depressed, elongate body and posterior pereopods adapted for digging (Lincoln, 1979). The family is widely diversified - about 38 recognized genera (see Barnard and Karaman, 1991; Bousfield and Chevreier, 1996) - and distributed worldwide from the lit-

toral to the abyss, with an apparent preference for bathyal/abyssal depths (Barnard and Karaman, 1991). No less than 24 species pertaining to 10 genera have been reported so far from the Mediterranean, mainly from bathyal floors in the western basin (Ledoyer, 1982; 1993; Bellan-Santini, 1983; Cartes and Sorbe, 1993).

In this contribution we give the description of a new species of oedicerotid amphipod belonging to the genus *Bathymedon* Sars, 1892 from the bathyal suprabenthos of the Catalan sea (western Mediterranean). The descriptive part is complemented by brief comments on several aspects of its natural his-

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tory. The new taxon was collected during a series of campaigns planned to establish the faunistic composition, depth distribution, and trophic role played by peracarid crustacean assemblages in the western Mediterranean bathyal floor (see Cartes and Sorbe, 1993; 1995; 1996).

MATERIAL AND METHODS

Material was collected from B/O 'García del Cid' on the slope of the Catalan sea (western Mediterranean) using a Macer-GIROQ type sledge (see Cartes *et al.*, 1994). This gear has three superimposed nets (mesh size: 500 μm ; 40 x 80 cm rectangular aperture) which sample the near-bottom water layers comprised between 0.1 and 1.5 m above the bottom.

As defined by Sainte-Marie and Brunel (1985), an index of swimming activity (Kt) was calculated on the basis of the abundance values recorded at the three levels sampled by the suprabenthic sledge (index range: 0-1).

Specimens were coloured by Black Clorazol B cuticular staining following the procedure described in Wagner (1994). Drawings were prepared using a camera lucida on a Olympus BH-2 microscope equipped with differential interference contrast. The

terminology used in descriptions follows Lincoln (1979). Setae on the 3rd segment of mandibular palp are designated according to Stock (1974), i.e.: D-setae are those located on tip of segment, whereas E-setae are those along the inner margin. Measurements refer to maximal distances between margins of segments considered. The type material is deposited in the Museu de la Naturalesa de les Illes Balears, Palma de Mallorca (MNCM).

Descriptions below apply to both males and females unless otherwise stated.

SYSTEMATICS

Order AMPHIPODA

Suborder GAMMARIDEA

Family OEDICEROTIDAE Lilljeborg, 1865

Genus *Bathymedon* Sars, 1892

Bathymedon longirostris sp. nov.

(Figs 1-10)

Material examined: Catalan sea slope (western Mediterranean). Coordinates: 40°54'3"N / 2°07'4"E; depth: 1271-1280 m. HOLOTYPE: ♂ of 7.55 mm (MNCM. 200). PARATYPES: 7 ♂ of 7.40, 6.62, 7.16, 7.72, 6.97, 7.42 and 7.14 mm (MNCM. 201) and 3 ♀ of 7.85, 7.94 and 9.83 mm (MNCM. 202). Collected by J. Cartes, 27 July 1992. Additional 266 specimens in different degrees of damage deposited in the Institut de Ciències del Mar (Barcelona).



Fig. 1. — *Bathymedon longirostris* sp. nov., adult ♀. Fresh specimen retaining eye and body pigmentation.

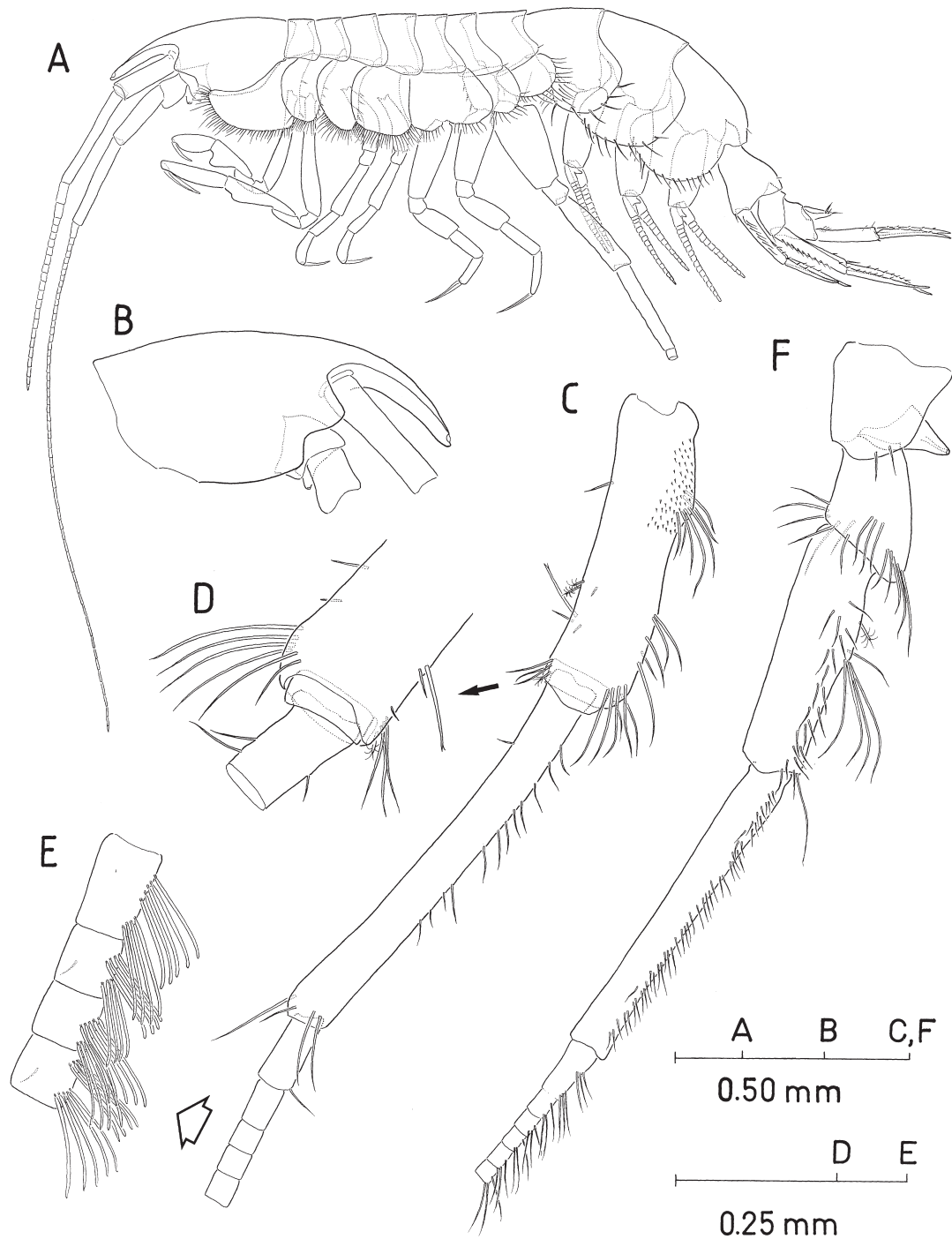


FIG. 2. – *Bathymedon longirostris* sp. nov. A, ♂ body, lateral (mouthparts and coxal gills omitted); B, ♀ head, lateral; C, proximal part of ♂ left first antenna, medial; D, detail of reduced second segment of peduncle of ♂ first antenna, lateral; E, detail of 4 proximal segments of flagellum of ♂ first antenna, medial (rows of aesthetascs on lateral side of segments omitted); F, proximal part of ♂ left second antenna, dorsal.

Description

Body (Fig. 2A) slender, with males smaller (up to 7.72 mm) than females (up to 9.83 mm). Colour (Fig. 1) whitish with roseate tinge. Head extremely elongate, narrowly prolonged anteriorly, with ros-

trum reaching end of first peduncle segment of antenna 1. Rostrum more strongly curved downwards in females (Fig. 2B) than in males; small membranous ovoid window dorsally close to tip of rostrum. Lateral lobe evenly rounded; post-antennal sinus hardly developed. Eyes (Fig. 1) not clear-



FIG. 3. – *Bathymedon longirostris* sp. nov. A, ♀ mandibles viewed from the oral cavity (palp pointing towards rostrum of animal); B, ♂ mandibular palp; C, first maxilla.

ly outlined, consisting of large, fuzzy bluish-grey patch extending from base of rostrum to posterior margin of head; eye soon indistinct in preserved material. Body somites length unequal, with pereonites 1 and 2 narrower than rest of pereonites. Urosomites 1 and 3 with dorsal margin concave, saddle-shaped. Surface of body somites (especially

lateral surfaces) with densely set tiny denticles (see Figs 9B and 10A).

Male antenna 1 shorter than second, with 3-segmented peduncle (Fig. 2C); second segment reduced and partially embedded in first segment, although visible in lateral aspect (Fig. 2D). First segment elongate, about 3.8 times as long as wide, with bulge

developed proximally on posterior margin; surface of bulge covered by tiny spinules. Third segment longest, about 11.2 times as long as wide and 1.4 times longer than 1st segment. Flagellum a bit shorter than peduncle, up to 22-segmented; first segment with single seta distally; remaining segments each bearing 4 clusters of short aesthetascs as in Fig. 2E (but notice that clusters on posterior side of segments are omitted there). Accessory flagellum absent. Status of female antenna 1 unconfirmed.

Male antenna 2 (Fig. 2F) long, with 5-segmented peduncle and up to 57-segmented flagellum. Peduncle about same length as peduncle of first antenna; flagellum segments lacking calceoli. Cone gland well developed, pointing laterally. Fourth and 5th peduncle segments elongate, former about 3.4 times as long as wide, latter about 7.6 times as long as wide and 1.3 times longer than 4th; array of densely set short setae along dorsal margin of both segments. Flagellum segments sub-equal unless proximal and distal, with 3 short setae; proximal segment doubling length of other segments, with 2 groups of 3 setae. Distal segment reduced. Status of female antenna 2 unconfirmed.

Upper lip (not figured) forming entire, narrow lobe. Lower lip (Fig. 9F) with inner lobes well developed, attaining size of outer lobes; lobes with tiny spinules and setules.

Mandibles (Fig. 3A) powerfully developed, fused anteriorly; right and left branches similar unless for *lacinia mobilis*. Incisor enormous, massive, reniform; no teeth differentiated on blade. Molar process cylindrical, with sclerotized grinding surface apparently smooth. Long, denticulate molar seta plus 3 smaller smooth setae present on process. Left *lacinia* bicuspidate sclerotized process; right *lacinia* smooth, sclerotized rounded plate. Spine row composed of 3 stout barbed elements. Palp 3-segmented; first segment reduced, naked. Second segment very elongate, about 9 (males) to 10.7 (females) times as long as wide, curved; armature consisting of 2 sub-parallel rows of sparse setae running along inner margin of segment. Third segment 64% (males) to 70% (females) length of second, with distal inner surface with patch of tiny spinules. Armature of third segment sexually dimorphic: whereas both sexes display 3 E-setae, males (Fig. 3B) bear also row of about 21 D-setae; females (Fig. 3A) have this row hardly developed, reduced to only 2 setae.

First maxilla (Fig. 3C) very reduced. Inner plate armed with 3 unequal plumose setae on tip. Outer

plate carrying distally group of 8 spines. Palp 2-segmented, surpassing clearly outer plate distally. First segment trapezoidal, naked. Second segment wide, with 7 stout smooth setae along distal margin; other 14 more slender setae distributed on inner surface of segment. Spinules and tiny denticles on surface of segments of both plates and palp.

Second maxilla (Fig. 4A) reduced, normal. Inner lobe with 11 stout and 9 more slender setae distally. Outer lobe longest, with 10 stout and 12 more slender setae distally. Long setules and tiny spinules adorning surface of lobes.

Maxilliped (Fig. 4B). Inner plate reduced, sub-square, with slender spine and 4 setae distally. Outer plate with inner margin straight, with 2 contiguous rows of scar-like stout denticles; upper row (that formed by larger denticles) with elements placed on 4th, 6th and 9th position from tip of segment differing in shape from others, setiform. Outer margin of plate evenly rounded. Anterior surface bearing row of 6 stout setae parallel to distal half of inner margin; other 2 setae proximally close to each other near the first denticles of the inner margin denticle rows. Posterior surface of plate with patch of long spinules. Palp (Fig. 4C) elongate, surpassing tip of outer plate. First segment reduced, bearing single seta on inner margin. Second segment elongate, about 3.4 times as long as wide, with surface covered by tiny spinules; inner margin with many slender setae. Third segment short, expanded distally, with numerous setae distributed on both margins and anterior surface; tiny spinules almost completely covering posterior surface of segment; spinules on anterior surface (and outer margin of posterior surface) somewhat larger. Fourth segment tapering, with single seta proximally on outer margin. Two transverse rows of 3 setae each on posterior surface, and 2 setae on outer margin of basal part of maxilliped.

Coxal plates (Fig. 2A) of unequal size and shape; plates 1-5 larger than 6-7. Plates 1 to 4 with anterior margins overlapping one in front; plate 5 largest, with anterior margin overlapped by posterior margin of plate 4; plates 5 to 7 with posterior margins overlapping one behind. Plate 1 (Fig. 5A) widely expanded anterodistally, forming lobe almost reaching cephalic post-antennal sinus; posterior margin slightly excavate. Distal margin fringed with setae, posterior margin with 3 stout spines. Distal surface of plate with tiny spinules. Plates 2-3 (Figs 6A and 7A) sub-similar, long and narrow, with convex, evenly rounded anterior margin and shallowly exca-

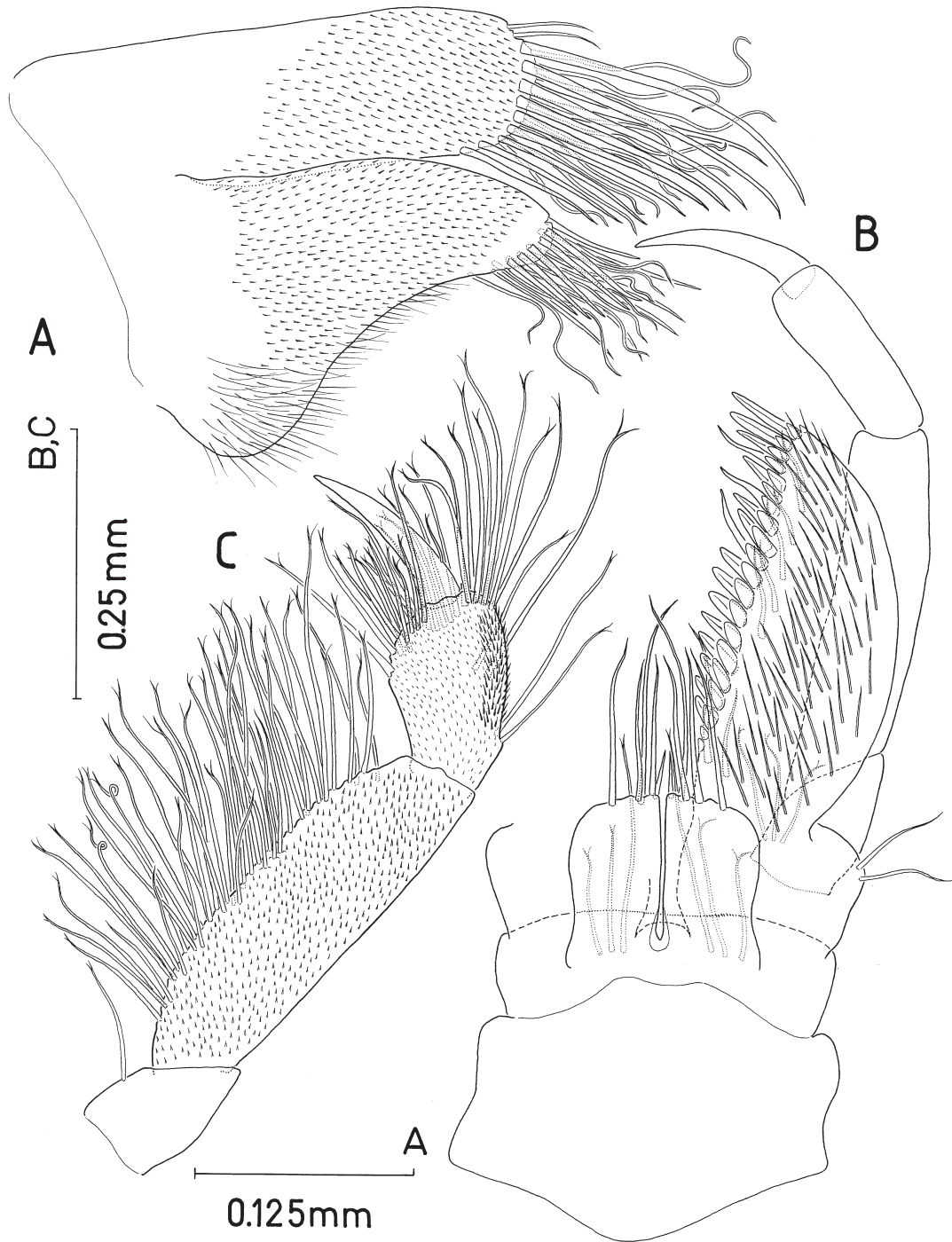


FIG. 4. – *Bathymedon longirostris* sp. nov., ♂. A, second maxilla; B, maxilliped, anterior (palp sketched, retaining natural orientation); C, right palp, posterior.

vate posterior margin; row of stout spines along distal half of posterior margin. Distal margin of plates convex, fringed with stout setae. Posterodistal surface of plate 3 with tiny spinules. Plate 4 (Fig. 8A) about as long as broad, with distal surface covered with tiny spinules; anterior margin convex, evenly rounded; posterior margin oblique, slightly exca-

vate; distal margin evenly rounded, fringed with smooth setae. Plate 5 (Fig. 8B) broader than long, expanded both anteriorly and posteriorly, sub-trapezoid; anterior margin convex, evenly rounded; posterior margin oblique, straight, with sparse plumose setae; basis of corresponding pereopod inserted about midway of distal margin of plate, conferring to



FIG. 5. – *Bathymedon longirostris* sp. nov., ♂ gnathopod 1. A, coxa to merus, latter with armature omitted; B, merus to unguis (notice that the palm margin armature on medial surface of propodus has been omitted); C, detail of posterior margin of carpus, armature removed; D, detail of tip of one of bicuspidate setae; E, medial surface of hand, with palm margin armature omitted to show tiny marginal spinulation and distal brush-like seta.

latter bilobed aspect. Plate 6 (Fig. 7D) densely covered with tiny denticles, with straight anterior margin and expanded posterior margin; distal margin evenly rounded, fringed with plumose setae; basis of corresponding pereopod on anterodistal corner of

plate. Plate 7 (Fig. 9A) broader than long, with oblique, straight anterior margin; posterior margin widely expanded, evenly rounded; distal margin evenly rounded, fringed with plumose setae. Plate surface covered with tiny denticles.

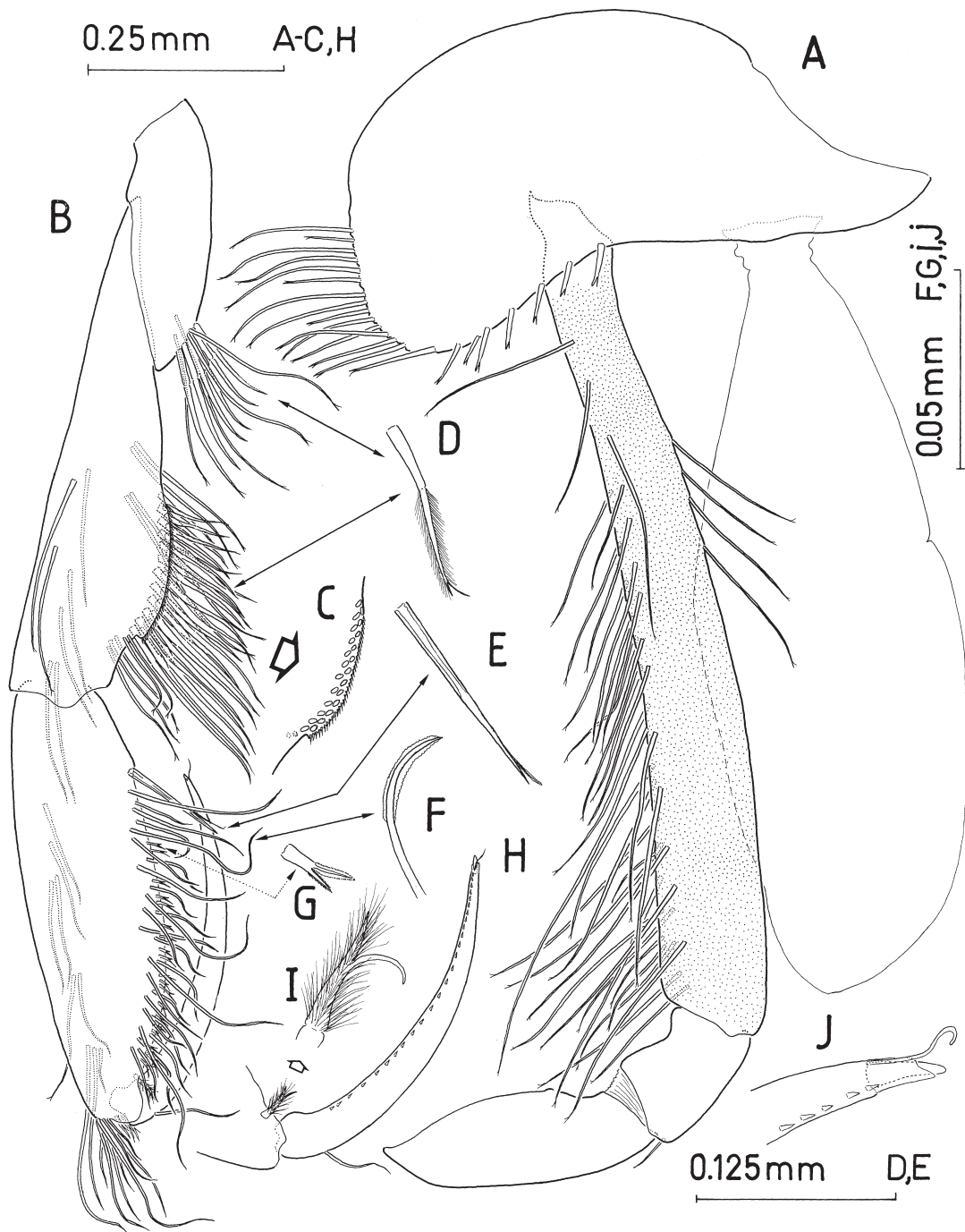


FIG. 6. – *Bathymedon longirostris* sp. nov., ♂ gnathopod 2. A, coxa to merus, latter with armature omitted; B, merus to unguis; C, detail of posterior margin of carpus (medial view), armature removed; D, detail of pectinate setae on posterior margin of merus and carpus; E, detail of bicuspidate spine on palm angle of propodus; F, detail of tip of one of setae along palm margin of propodus; G, detail of one of short, bipinnate spines along palm margin of propodus; H, detail of dactylus-unguis (distal part of propodus with armature omitted except bicuspidate, brush-like seta on distal part of palm); I, detail of latter; J, detail of distal portion of dactylus and unguis.

Coxal gills (Fig. 8A) on pereopods 2 to 6, similar, smooth, foliate, ovoid, stalked. Oostegites (Fig. 9E) developed on pereopods 2 to 5, slender, with long, smooth marginal setae.

Gnathopod 1 (Fig. 5): basis about 6.2 times as long as wide, slightly constricted proximally, with

surface finely pitted with integumentary microtubercles; row of long, bicuspidate naked setae along anterior and posterior margins (Fig. 5A); row of long, bipinnate setae proximally on medial surface of segment; 2 bicuspidate naked setae distally on posterior margin (1 very reduced). Ischium nor-

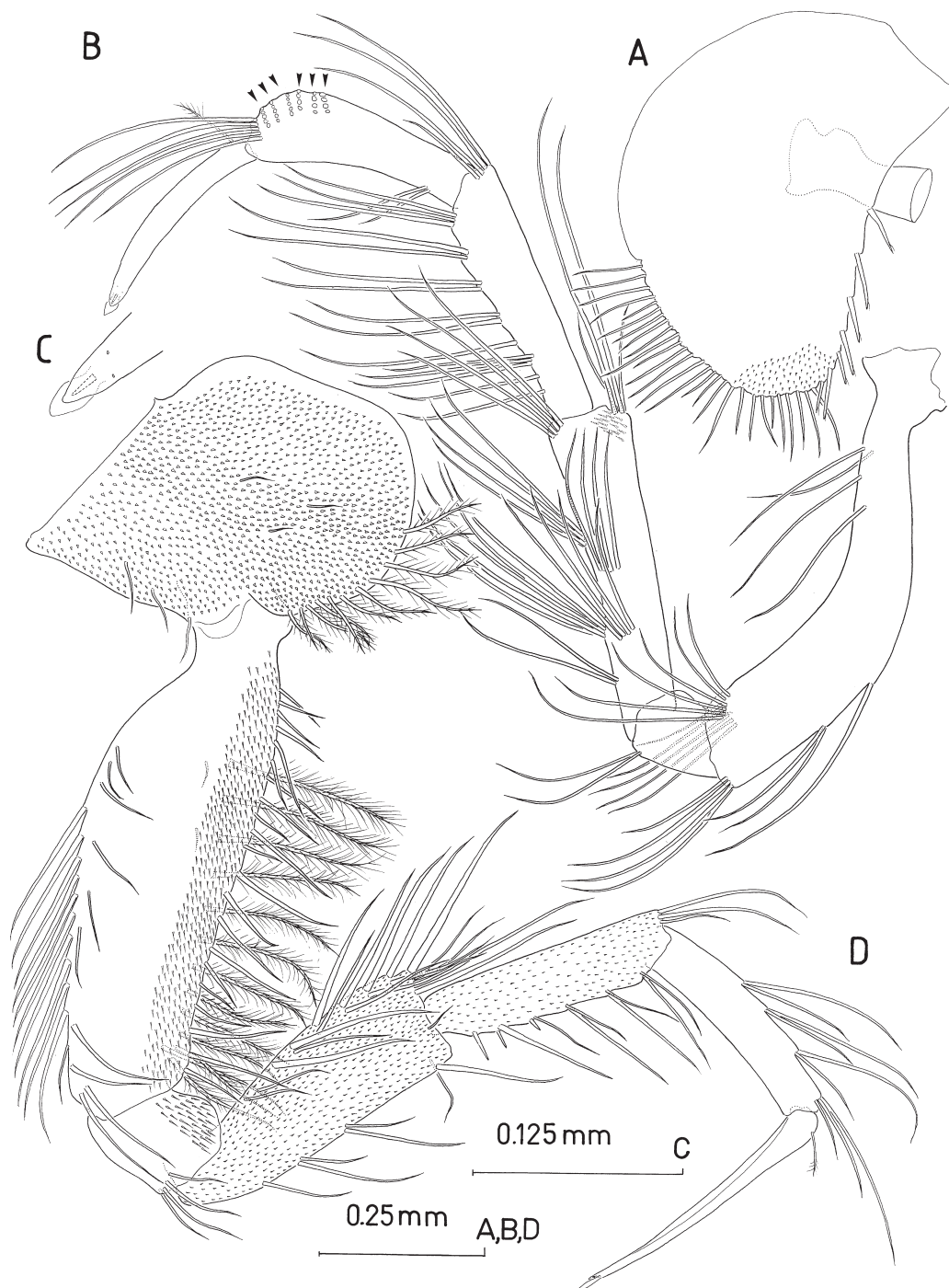


FIG. 7. – *Bathymedon longirostris* sp. nov., ♂. A and B, third pereopod, lateral (arrowheads pointing to location of transverse rows of setae on propodus omitted in figure); C, detail of tip of third pereopod; D, sixth pereopod, lateral.

mal, short, with single seta distally on posterior margin (although sometimes absent); surface of segment smooth. Merus about 2.4 times as long as wide, with surface covered with tiny spinules; posterior margin smooth, lacking teeth or notches; about 17 bicuspidate, naked setae around posterior margin (Fig. 5B). Carpus elongate, with posterior

margin protruding at two thirds of distance into large, rounded lobe (width of segment at level of lobe about 50% length); margin of lobe (Fig. 5C) bearing row of lamellar spinules; rest of segment with surface covered with tiny spinules. Armature consisting of: [a] 16 setae on medial surface of lobe; [b] 3 transverse combs of 3 setae each on medial

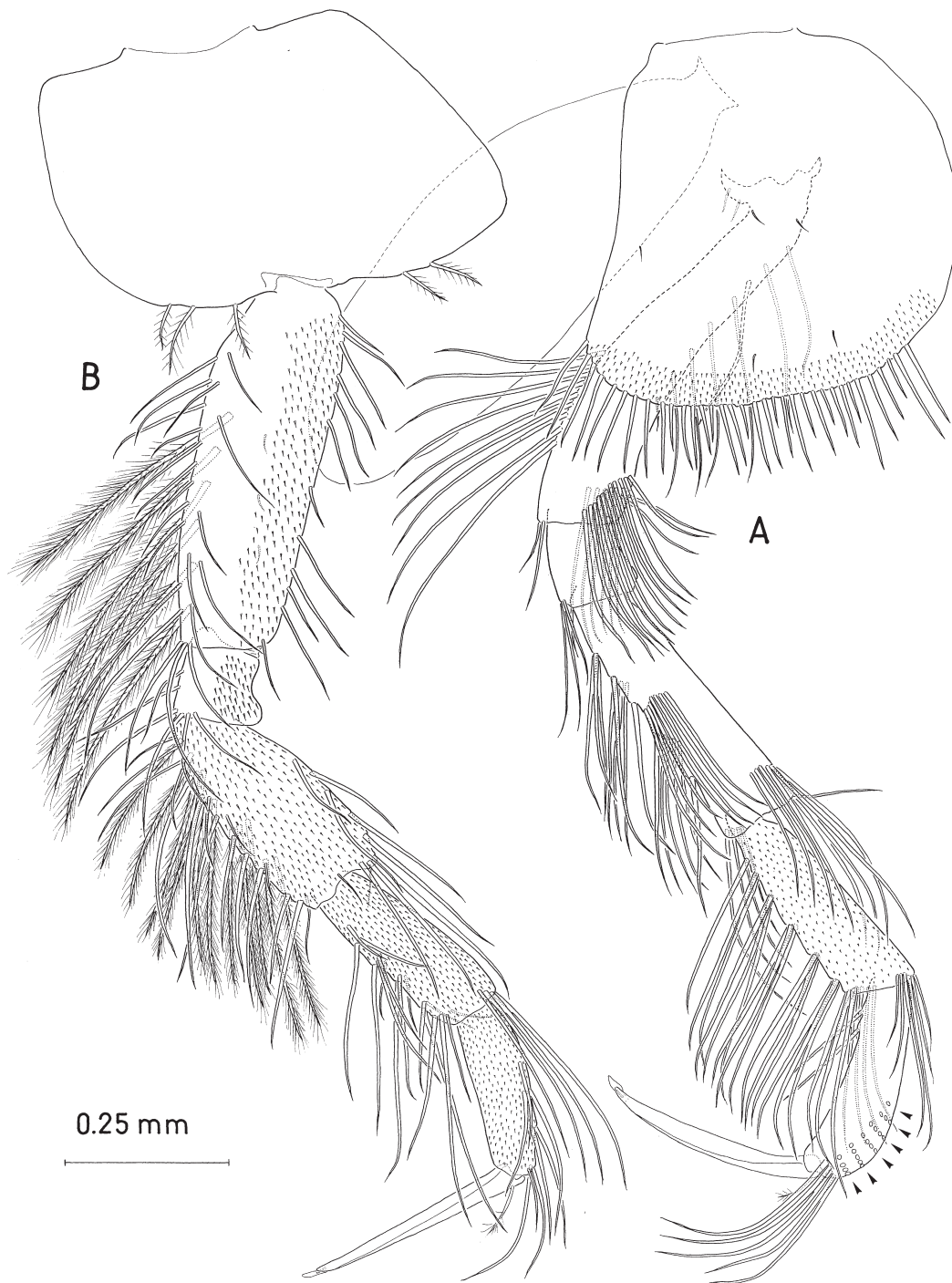


FIG. 8. – *Bathymedon longirostris* sp. nov., ♂. A, fourth pereopod, lateral (arrowheads pointing to location of transverse rows of setae on propodus omitted in figure); B, fifth pereopod, lateral.

surface of segment; and [c] 2 isolated setae on lateral surface of segment. All setae bicuspidate and naked (see Fig. 5D). Propodus ovoid, 2.4 times as long as wide, with strongly oblique palm. Palm angle located at about one third of distance along segment, bearing 1 long, bicuspidate spine. Palm margin convex, covered with tiny spinules (Fig. 5E);

each side with row of short bicuspidate spines and long setae (Fig. 5B) (this armature is similar to that on second gnathopod (Fig. 6 E-G)); 1 bicuspidate, brush-like seta distally on margin, partially hidden under flexed dactylus (Fig. 5E; see also Fig. 6I). Medial surface of segment with patch of tiny spinules and 6 clusters of setae, 1-2 setae each (Fig. 5E);

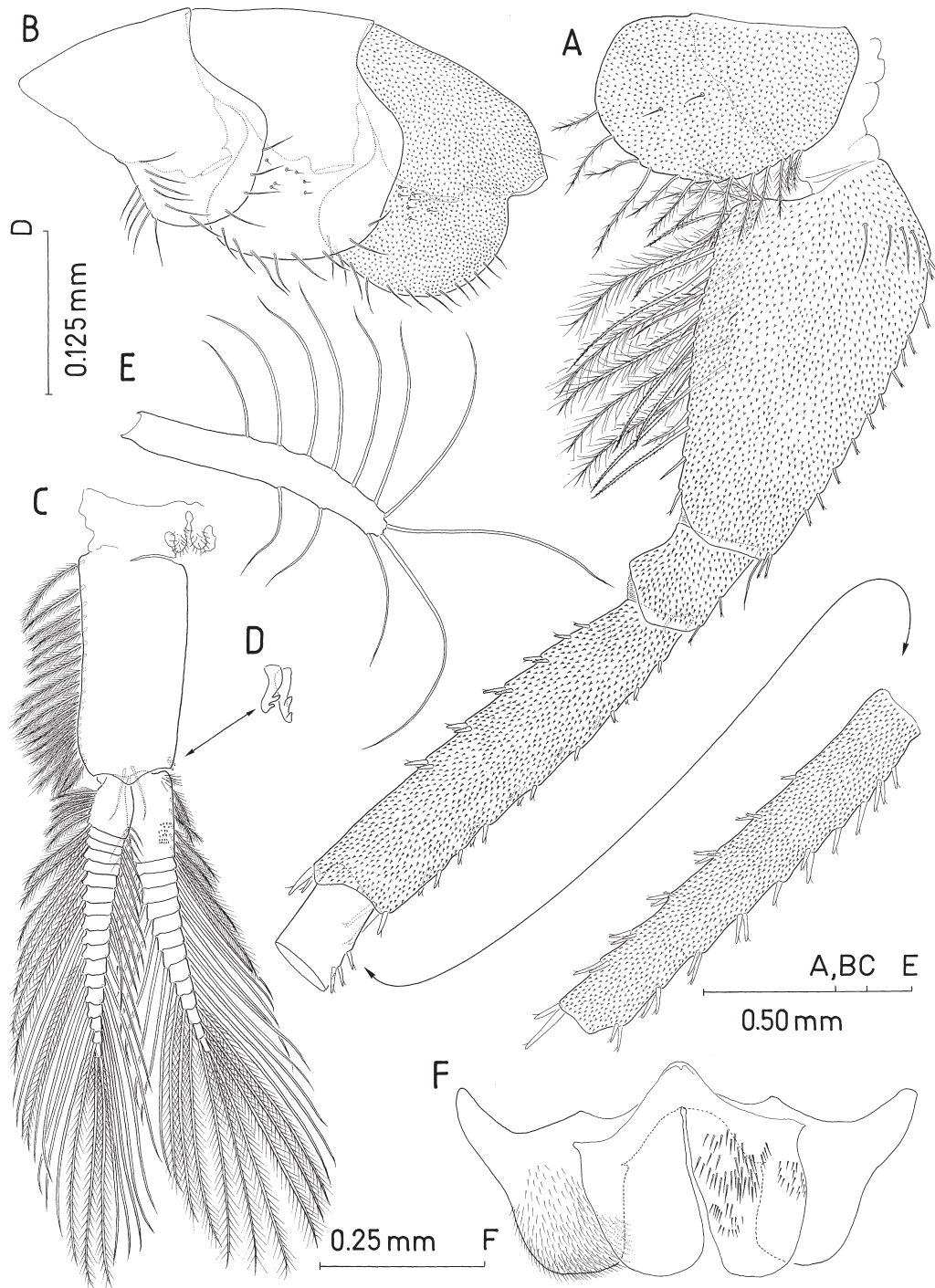


FIG. 9. – *Bathymedon longirostris* sp. nov., ♂. A, seventh pereopod, lateral (propodus-unguis lost); B, pleosome, lateral (surface ornamentation of segments 1 and 2 omitted); C, first pleopod, anterior; D, detail of coupling hooks; E, ♀ second gnathopod oostegite; F, lower lip.

lateral surface smooth, with single seta. Anterior margin of segment with distal tuft of 9 setae plus 2 shorter bicuspidate spines. Claw slender, not reaching palm angle; dactylus with 1 long seta proximally and 1 reduced seta distally on anterior margin; row of small denticles sub-marginally along posteri-

or margin. Unguis very reduced, partially concealed by hyaline sheath derived from propodus (Fig. 6J).

Gnathopod 2 (Fig. 6A-B) longer and more slender than first. Basis and ischium similar to gnathopod 1, although basis a bit longer (about 7.3 times as long and wide) and lacking row of bipinnate setae on

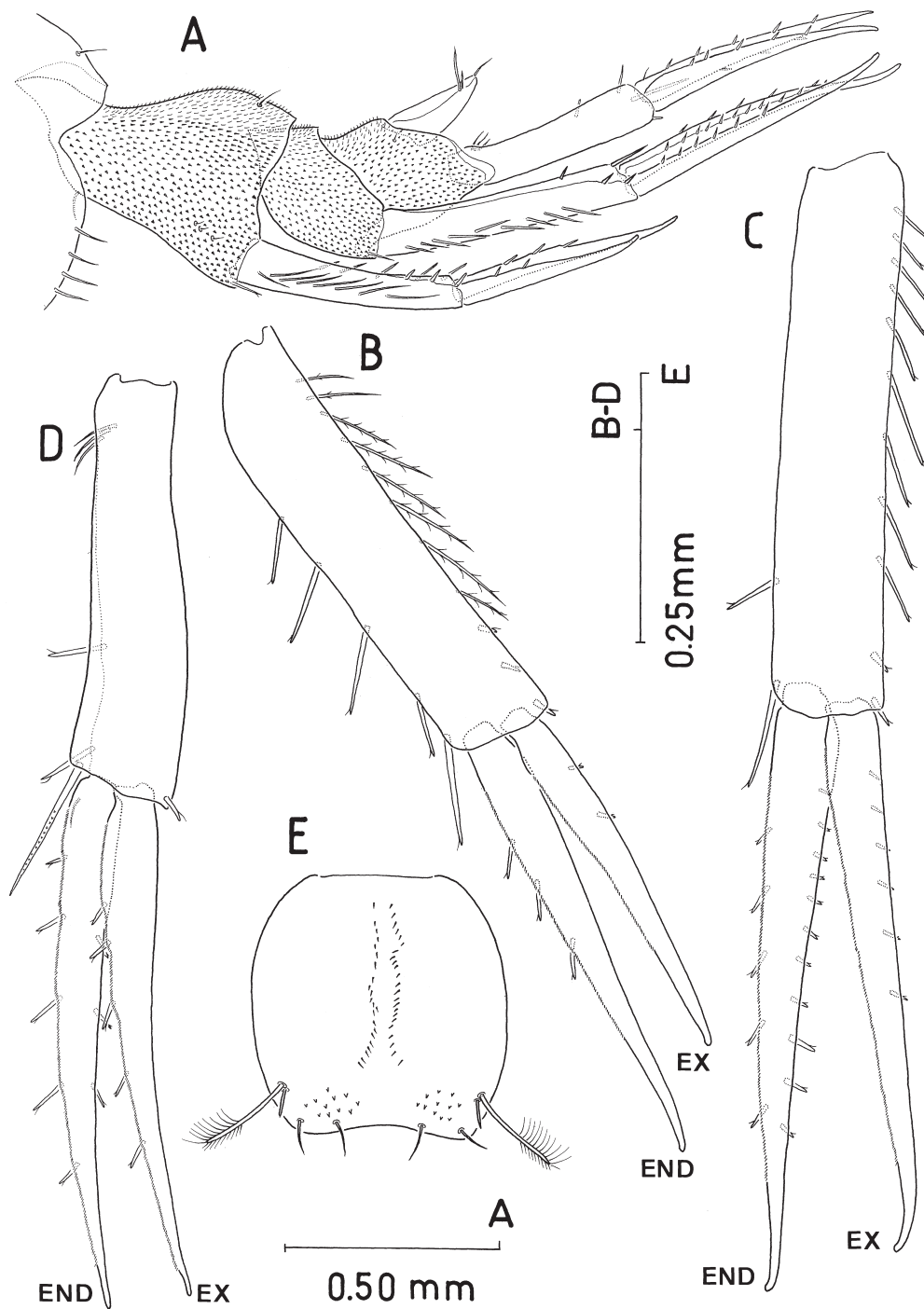


FIG. 10. – *Bathymedon longirostris* sp. nov., ♂. A, urosome, lateral; B, first uropod, anterior (ex= outer ramus, end= inner ramus); C, second uropod, anterior; D, third uropod, anterior; E, telson, posterior (=dorsal).

medial surface. Merus about 3 times as long as wide, with row of 6 short, stout bipinnate setae (Fig. 6D) and 4 slender, naked setae sub-distally on posterior margin; surface of segment smooth; posterior margin lacking teeth or notches. Carpus slender, about 3.8 times as long as wide, with smooth surface; posterior margin hardly developed into ridge bearing row of

marginal spinules (Fig. 6C); ridge not reaching distal margin of segment. Armature of carpus consisting of 2 parallel rows of about 12 bipinnate setae sub-marginally along medial surface of ridge, plus several slender, bicuspidate setae. Propodus elongate, ovoid, about 3.3 times as long as wide, with smooth surface. Palm angle located at about one quarter of distance

along segment, bearing long bicuspidate spine (Fig. 6E); palm margin strongly oblique, armed in similar way as described above for gnathopod 1 (see Fig. 6F-I), although lacking tiny marginal spinulation. Claw (Fig. 6J) as in gnathopod 1.

Pereopod 3 (Fig. 7A-B) slender, with curved basis and club-shaped propodus; unguis minute, placed sub-distally on dactylus and covered by hyaline flap (Fig. 7C). Patch of spinules anterodistally on medial surface of merus; transverse row of setae on lateral surface of segment. Propodus with series of parallel transverse rows of setae on distal part of anterior margin of segment. Pereopod 4 (Fig. 8A) roughly similar to latter except for more setose aspect, less strongly curved basis, presence of 2 transverse rows of setae on lateral surface of merus instead of 1, absence of patch of spinules on latter segment, and micro-spinulate surface of carpus.

Pereopods 5-6 sub-similar, with tapering, slender claw. Armature and surface ornamentation of segments as in Figs 8B and 7D. Pereopod 6 (Fig. 7D) slightly more slender and less densely setose than pereopod 5, lacking sub-marginal row of plumose setae along anterior margin of merus. Also, row of plumose setae on medial surface of basis are here close to posterior margin of segment. In pereopod 5 (Fig. 8B), on the contrary, this row runs close to anterior margin.

Pereopod 7 (Fig. 9A) largest, long and stout, with basis expanded proximally. Status of distal part of limb (propodus + claw) unconfirmed. Basis with row of plumose setae on medial surface, near to posterior margin; transverse row of short, smooth setae anteroproximally.

Epimeral plates 1-3 (Fig. 9B) each with posterior part concealing anterior margin of next plate, evenly rounded, with marginal row of smooth setae; first plate bearing additional row of sub-marginal setae on anterior margin. Pleopods 1-3 (Fig. 9C) well developed, similar. Peduncle with row of short plumose setae along outer margin and 2 smooth setae distally on posterior surface of segment; coupling hooks (Fig. 9D) bidentate. Rami composed of variable number of segments, with proximal segment of inner ramus considerably longer than corresponding segment of outer ramus. Proximal segment of male outer ramus with soft, finger-like process on posterior surface (see Fig. 2A); process hardly developed in female. Setae on rami plumose.

Uropods sub-similar; both rami 1-segmented and tapering, with medial margins ciliate. Uropod 1 (Fig. 10B) with peduncle 4.7 times as long as

wide, equalling length of inner ramus; armature consisting of 5 long spines along medial margin and row of 8 setae plus 3 short spines along lateral margin. Inner ramus with 3 spines along medial margin. Outer ramus 82% length of inner ramus, with 2 spines proximally on lateral margin. Uropod 2 (Fig. 10C) largest, with peduncle 5.3 times as long as wide, with row of 9 long and 2 short spines along lateral margin, and 2 spines on medial margin. Inner ramus slightly longer than peduncle, with 5 spines along medial margin and row of 11 spines along lateral margin. Outer ramus attaining 90% length of inner ramus, with 6 spines along lateral margin. Uropod 3 (Fig. 10D) reaching apex of uropod 2 (see Fig. 10A), with peduncle 3.9 times as long as wide, expanded distally; armature consisting of transverse row of 3 setae dorsomedially on proximal part of segment, plus 1 short spine distally on lateral margin and 1 long and 2 shorter spines on medial margin of segment; long, distal spine on medial margin dentate. Inner ramus 1.3 times as long as peduncle, with 1 tiny basofacial seta, row of 5 spines along medial margin, and 3 spines along lateral margin. Outer ramus slightly shorter than inner ramus, with 4 spines along medial margin.

Telson (Fig. 10E) laminar, entire, sub-quadrate, with convex lateral margins. Distal margin concave. Armature consisting of 4 short, slender setae along distal margin, and pair composed of stout, plumose seta plus shorter, smooth seta, both located posterolaterally (=dorsolaterally) near distal margin at each side of segment. Pattern of tiny spinules and denticles adorning posterior surface of segment.

Sexual dimorphism

Reduced to head aspect and armature of mandibular palp. Differences on antennae unconfirmed. Females apparently larger than males, with very reduced finger-like process on pleopods (cf. Fig. 2A for males).

Etymology

Species named after its elongate rostrum.

Remarks

In the peduncle of the first antenna of the new species we have discovered what seems to be a tiny remnant of the 2nd segment of the basic Gam-

maridean first antenna partially hidden by the first peduncle segment. We suspect that this condition could be the normal state in the Oedicerotidae, having been overlooked to date in other members of the family. Consequently, what has been considered to be the 3rd peduncle segment in other oedicerotids could correspond in fact to the proximal segment of flagellum.

Differential diagnosis

The foregoing new taxon belongs to a group of oedicerotids characterised by the display of unequal gnathopods with carpal lobes not projecting to guard the propodus. Members of this cluster have traditionally been allocated in either *Westwoodilla* Bate, 1862 or *Bathymedon*. The genus *Bathymedon* was established by Sars (1892) to accommodate the species of *Halimmedon* Boeck, 1871 (= *Westwoodilla*) displaying a quite rudimentary condition of the visual organs, a non-produced frontal part of the cephalon, a rather unequal structure of the gnathopods, and an unusually large size of the mandibles. The former author designated *Bathymedon longimanus* (Boeck, 1871) as the type species. After Sars' original designation of the genus, the criteria for allocating the new species to either it or *Westwoodilla* have not been followed strictly. Generally any species with either weak rostrum, poorly developed eyes, or straight article 2 of the mandibular palp were placed in *Bathymedon*, whereas those with well developed rostrum and eyes, and strongly bowed article 2 of the mandibular palp were placed in *Westwoodilla*. Nevertheless, Barnard (1961) and Barnard and Karaman (1991) cast doubts about the independence of both genera, as some species are known to display mixtures of the putatively generic diagnostic characters.

Our taxon matches *Bathymedon* (cf. the foregoing original diagnosis of the genus) in having: [1] the carpus of the second gnathopod much more elongated and narrower than its gnathopod 1 counterpart, with no developed posterior lobe; [2] the hypertrophied, massive incisive process of mandible; and [3] the poorly defined, diffuse eye patch. Also, the new taxon shares with the other representatives of the genus in having the second segment of the mandibular palp only slightly curved (as opposed to the strongly bowed segment displayed by the closely related *Westwoodilla*).

The genus *Bathymedon* currently embraces 24 species (see Barnard and Karaman, 1991 and refer-

ences therein), although most of them do not match the original generic diagnosis. In fact only six species display the characteristic —narrow, elongate, lacking lobe— carpus of gnathopod 2, namely: *B. longimanus*; *B. acutifrons* Bonnier, 1896; *B. neozelanicus* K.H. Barnard, 1930; *B. pumilus* J.L. Barnard, 1962; *B. roquedo* J.L. Barnard, 1962; and *B. flebilis* J.L. Barnard, 1967 (see Sars, 1892; Bonnier, 1896; Barnard, 1930; Barnard, 1962; 1967).

Bathymedon flebilis and *B. pumilus* differ at first sight from the new species in lacking rostrum or having it hardly developed, respectively. The description of *B. neozelanicus* was not accompanied by figures, although Barnard (1930) remarked on its short rostrum and short peduncle of first antenna; these character states differ from those found in the new species. Major diagnostic differences between *B. longirostris* sp. nov. and the remaining three taxa rely, among other character states, on: [1] its very produced rostrum, equalling the length of the proximal segment of peduncle of the first antenna (the rostrum is clearly shorter than this segment in the other taxa); [2] the discrete, rounded lateral lobe of the head (this lobe is hardly developed in *B. longimanus* and *B. acutifrons*, whereas it is pointed in *B. roquedo*); [3] the relative elongation attained by the third segment of peduncle of the first antenna compared to the first (notice that this third segment corresponds to the 2nd of the figured antennae in the other taxa; see above): thus, the third segment is considerably longer in the new taxon as opposed to the roughly equal length of both segments in the other taxa.

Additional differences between the new species and *B. longimanus* and *B. acutifrons* rely on the relative length of the carpus of the second gnathopod, which is sub-equal to propodus (about 1.15 times as long as propodus) and not considerably longer as in the other two species (about 1.39 times longer). Complementary diagnostic differences between the new species and *B. roquedo* are found in the morphology of both the 2nd segment of the mandibular palp and the distal margin outline of the telson: whereas the latter species has the palp segment expanded proximally and the distal margin of the telson convex, *B. longirostris* displays a uniformly slender palp segment and a telson with concave distal margin.

Bathymedon longirostris and *B. acutifrons* differ from the other species of the genus in having a very slender propodus of the second gnathopod, which attains the maximum width not at the palm angle, but at about midway along the palm margin. Never-

theless, both species can be easily differentiated from each other attending to the foregoing mentioned character states.

DISTRIBUTION AND ECOLOGY

A total of 277 specimens of *Bathymedon longirostris* sp. nov. were captured in 21 samples taken during 1991-1992 on the Catalan Sea slope (NW Mediterranean; between 40°12'N and 41°09'3"N - 1°34' E and 2°35'4"E). The cruise covered a depth range from 392 to 1859 m. The new taxon occurred in 45% of the samples taken between 593 and 1859 m. It was one of the dominant amphipods in the lower slope (below 1000 m). In the range comprised between 1250 and 1859 m, *B. longirostris* was the second dominant species after the eusirid *Rhachotropis caeca* Ledoyer, 1977, accumulating 11.4% of the total gammarideans captured at such depths. The species occupied muddy bottoms with pteropod shells and remains of planktonic foraminiferans.

Three additional species of *Bathymedon* were found in the studied area, viz. *B. acutifrons*, *B. banyulsensis* Ledoyer, 1983 and *B. monoculodiformis* Ledoyer, 1983. Despite the fact that the bathymetric range they covered (from 389 to 1284-1859 m) overlaps that of the new species, they reached their maximum population densities at the upper and middle slope (between 389-601 m), thus at shallower depths than *B. longirostris* sp. nov.

Swimming capacity

On the basis of their differential capture at the three levels of the suprabenthic Macer-GIROQ sledge, an index of swimming activity (Kt) was calculated for both adult males and the rest of demographic categories taken together (i.e.: juveniles, sub-adult females and males, and adult females). The index for adult males (0.378; n=34) was higher than the corresponding Kt for the rest of demographic categories (0.057; n=133), thus indicating that the former tended to occupy upper levels beyond the water-sediment interface.

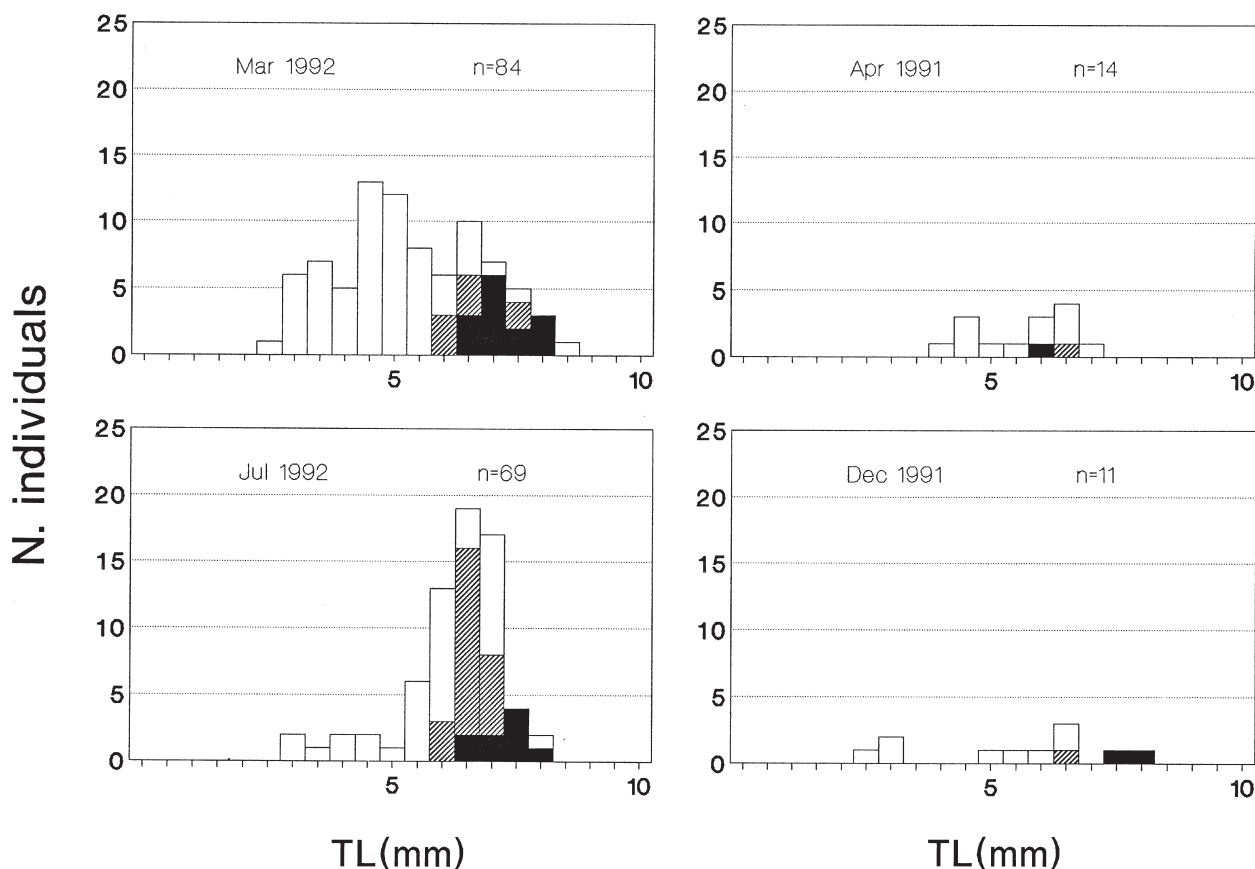


FIG. 11. – Composed size-frequency distribution diagrams of *Bathymedon longirostris* sp. nov. Histograms are arranged by months in different years. ■ brooding females; ▨ adult males; □ other demographic categories.

Gut content

The analysis of the gut content of three individuals (body size between 5.8 and 7.3 mm) revealed a bulk of hard remains, with dominance of fragments of large benthic and pelagic foraminiferans. Some small intact foraminiferans - *Bolivina* sp., Cibicidae indet. - were also present. This supposed consumption of calcified foraminiferans might be related to the massive incisor of mandible exhibited by the new species.

Biological characteristics of populations

Both adult males and marsupial females (with fully developed and setose oostegites) were present in the samples from the four seasonal periods (March 1992, April 1991, July 1992, and December 1991) covered in this study (see Cartes *et al.*, 1994 for details on stations sampled in each period). Whereas the smallest juveniles captured (total length: 2.5-3.0 mm) were more abundant in samples from March and December (Fig. 11), adult specimens were clearly dominant in July. This suggests the reproductive cycle of the species, although continuous, follows some type of periodicity.

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