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A NEW SPECIES OF *CERAPUS* SAY, 1817
(CRUSTACEA: AMPHIPODA) FROM THE NORTHERN
GULF OF MEXICO, WITH NOTES
ON ITS ECOLOGY

James D. Thomas and Richard W. Heard

Abstract.—During research in coastal marshes of the Mississippi Delta region in 1975, a large, undescribed amphipod belonging to the genus *Cerapus* was discovered in tidal channels. This new species, *C. benthophilus*, is characterized by its large size and 7-12 segmented antennal flagella. Habitat preference is muddy silt bottoms upon which it constructs conspicuous mats or "tufts" of interwoven tubes in shallow coastal bays and marshes from Louisiana to the panhandle areas of northern Florida.

Cerapus benthophilus, sp. nov.

Figs. 1-4

Holotype.—USNM 171350, male (10 mm BL), Ocean Springs, Mississippi, 30°23'36"N; 88°48'31"W; Davis Bayou, 400 m west of the Gulf Coast Research Lab, 1.5 m depth, collected by R. Heard, 8 April 1976.

Paratypes.—USNM 171351, 29°13'01"N; 90°14'05"W; Bayou Sevin, Louisiana, 3 m depth, collected by J. Thomas, 14 March 1975.

Diagnosis.—Species large, male and female reaching body lengths, excluding antennae, of 11 and 9 mm respectively; pereon segment 1 of male bearing lateral keel; antennal flagella 7-12 segmented; basis of pereopod 2, anterodorsal margin with numerous, long setae (males only).

Description.—Male, 10 mm. Body: Constricted between pereon segments 1 and 2; head elongate, equal in length to pereonites 1-2. Rostrum: Reaching ocular margin; frontal ocular margin incised, lateral lobes prominent. Eyes: Circular; black in formaldehyde-preserved specimens. Antenna 1: 60% BL; reaching first flagellar segment antenna 2: segment 1 compressed laterally, deepest posteriorly, bearing paired setae ventrally; peduncle with numerous, paired, long setae; flagellum 9-segmented. Antenna 2: 90% BL; flagellum 9-segmented; peduncle with long, paired setae. Upper lip: Apical margin slightly emarginate. Mandible: Normal for genus; palp segment 1 the shortest; incisors moderately toothed; lacina mobilis followed posteriorly by 3 raker spines; molar strongly triturative. Lower lip: Mandibular projection pointed. Maxilla 1: Inner plate small, bearing single apical seta; outer plate with 9-10 apical spines; palp 2-segmented, medial and lateral margins bare. Maxilla 2: Inner and outer plates lightly fringed with setae medially,

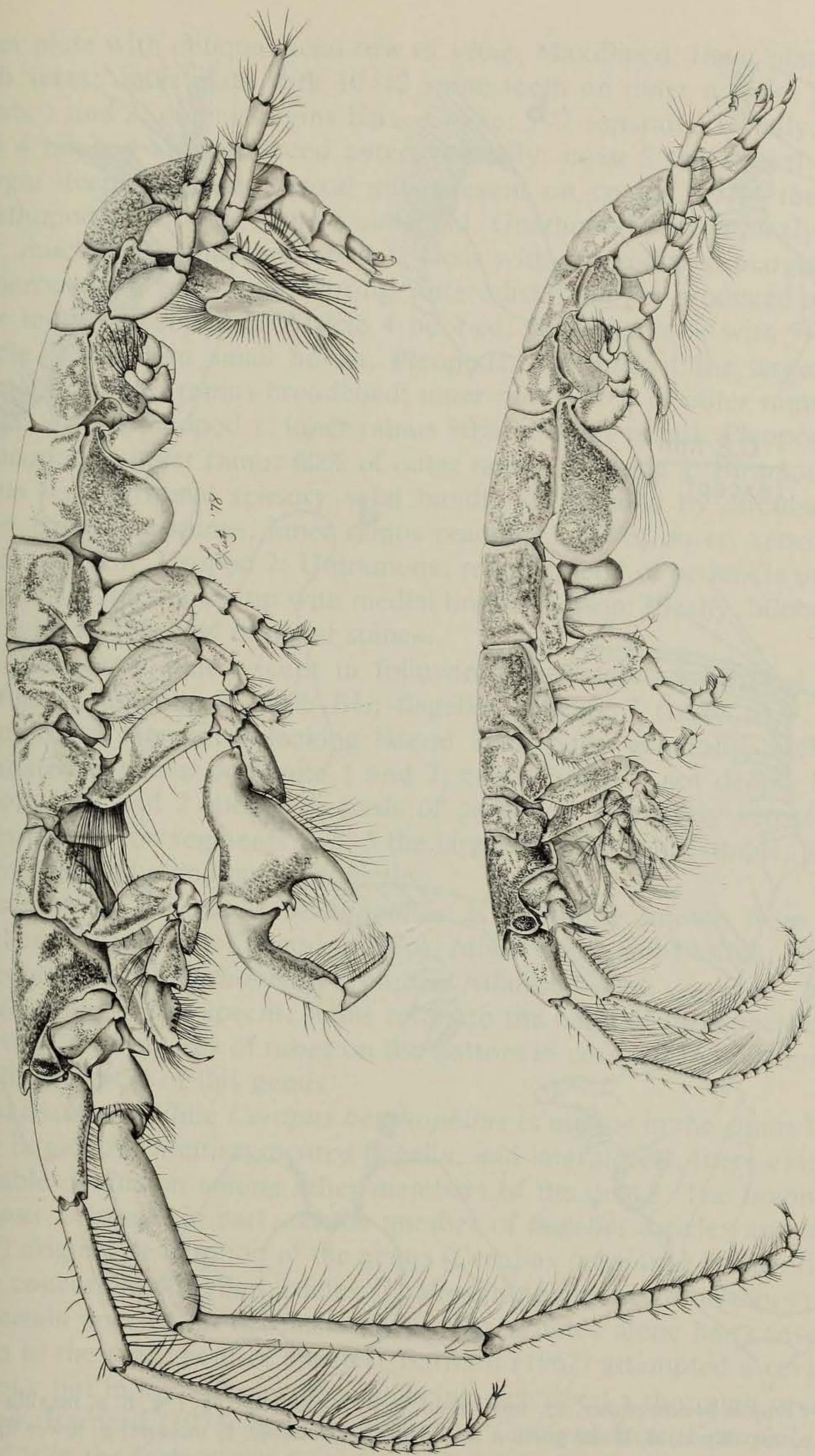


Fig. 1. *Cerapus benthophilus* sp. nov., Davis Bayou, Mississippi. Top; holotype, male, 10 mm, USNM 171350. Bottom; paratype, ovig. female, 6 mm, USNM 171351.

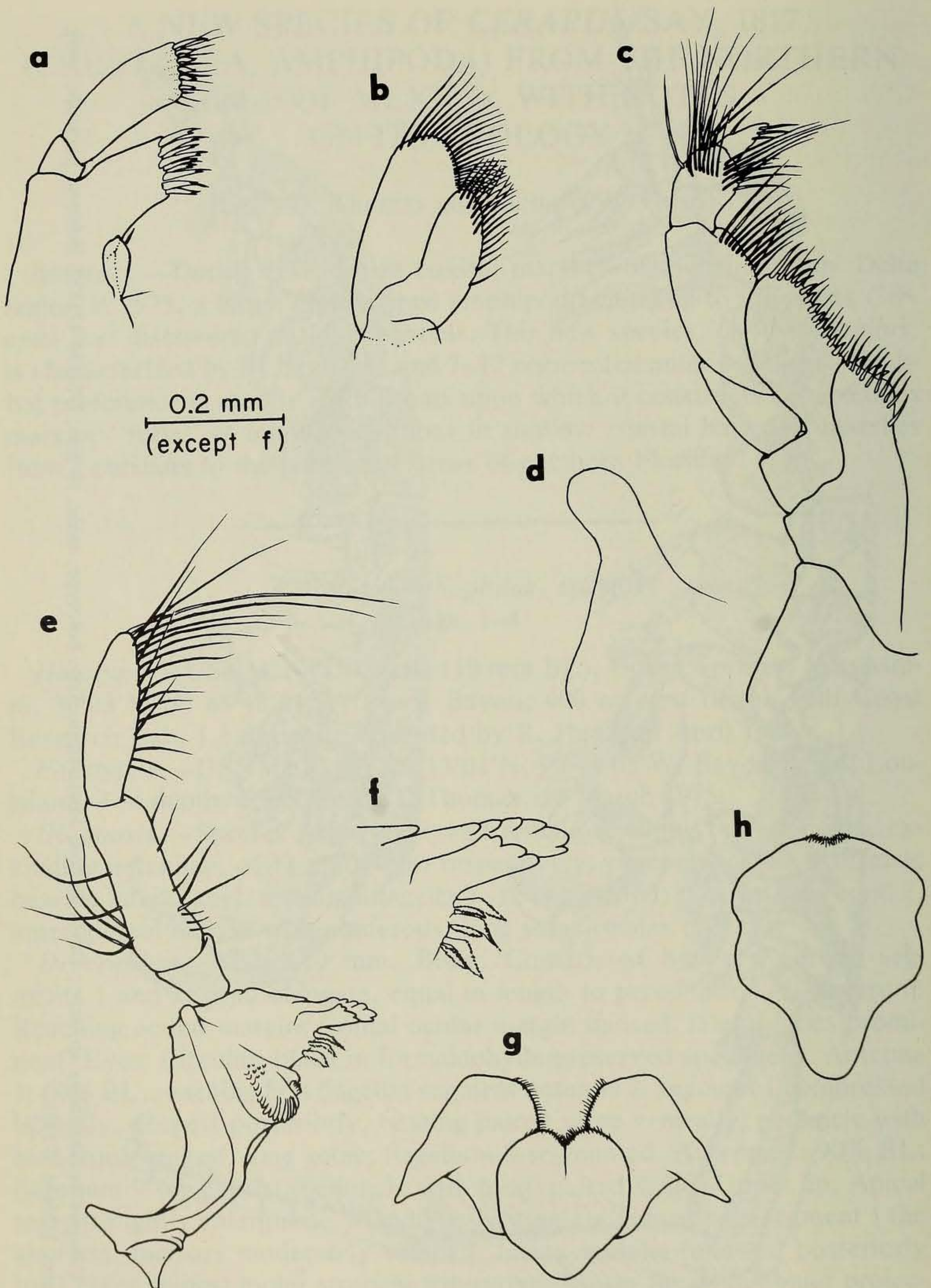


Fig. 2. *Cerapus benthophilus*, sp. nov. Male; b, d; female; a, c, e, f, g, h. a, maxilla 1; b, maxilla 2; c, maxilliped; d, distal portion lower lip; e, mandible; f, incisors; g, lower lip; h, upper lip.

inner plate with oblique facial row of setae. Maxilliped: Inner plate fringed with setae; outer plate with 10–12 spine teeth on inner margin; palp segments 1 and 2, outer margins bare. Coxae: 1–7 separated serially; coxae 3 and 4 bilobed and produced anteroventrally; coxa 5 the largest, anterior margin deeply rounded; coxal gills present on coxae 3–5, 4 the largest. Gnathopod 1: Articles 5 and 6 subequal. Gnathopod 2: Complexly subchelate, much larger than pereopod 1; basis with anterodorsal margin bearing numerous long setae; palm strong, anterodistal margin produced as prominent tooth. Pereopod 5: Article 4 bilobed, posterior lobe with 7–9 setae; article 7 with two small hooks. Pleopods: Unequal; 1 the largest, basal segment of outer ramus broadened; inner ramus 70% of outer ramus. Pleopod 2: 90% of pleopod 1; inner ramus 90% of outer ramus. Pleopod 3: 60% of pleopod 1; inner ramus 60% of outer ramus. Uropod 1: Biramous; outer ramus with terminal sensory setal bundle surrounded by circular cup of large, triangular spines; inner ramus reaching 65% of outer, sensory setal bundle present. Uropod 2: Uniramous; reaching end of peduncle uropod 1. Uropod 3: Uniramous; tip with medial hooks. Telson: Fleshy; bilobed, each lobe with double row of distal spines.

Female.—As male except in following characters: Antenna 1 90% of antenna 2; antenna 2, 50% BL; flagellar articles 7 (rare) to 9, usually 8; pereonite segment 1 lacking lateral keel; body generally thicker, not attenuated between pereonite 1 and 2; coxae 3 and 4 not deeply bilobed; pereopods 1 and 2 subequal; basis of pereopod 2 sparsely setose; brood plates present on segments 2–5, 5 the largest; brood setae simple; lower lip lacking pointed mandibular projection.

Distribution.—*Cerapus benthophilus* is presently known from coastal marshes in Louisiana (Thomas, 1976), Mississippi, and Florida. There are no records of *C. benthophilus* from the Atlantic Coast.

Etymology.—The specific name refers to the habit of this species in constructing large masses of tubes on the bottom in contrast to the short, portable tube typical of this genus.

Discussion.—While *Cerapus benthophilus* is unique in the genus because of its large size, multisegmented flagella, and lateral keel, there exists considerable confusion among other members of the genus. The taxonomy of *Cerapus* is based, in part, on the number of flagellar articles and in Say's (1817) original description of the genus (*Cerapus tubularis*) no mention was made concerning flagellar articles. The resulting practice of authors restricting certain species on the basis of flagellar articles alone has caused confusion in the placement of species. Barnard (1962) attempted a revision of *Cerapus* but in light of new species being described a thorough revision is needed. Barnard (1973) has also removed *Cerapus* from Corophiidae and placed it in the Ischyroceridae.

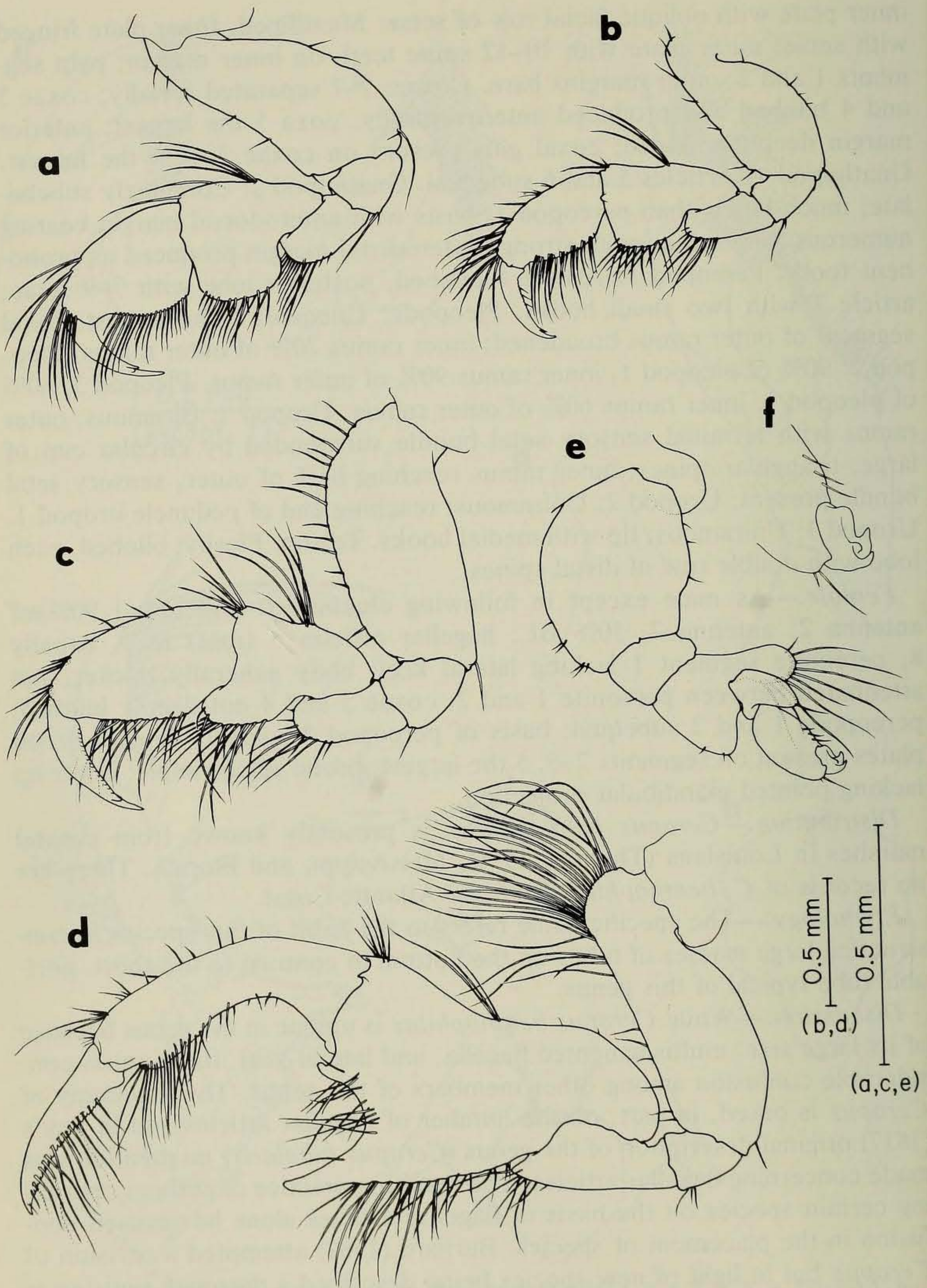


Fig. 3. *Cerapus benthophilus*, sp. nov. Male; a, d; female; b, c, e, f. a, gnathopod 1; b, gnathopod 1; c, gnathopod 2; d, gnathopod 2; e, pereopod 5; f, pereopod 5, segment 7.

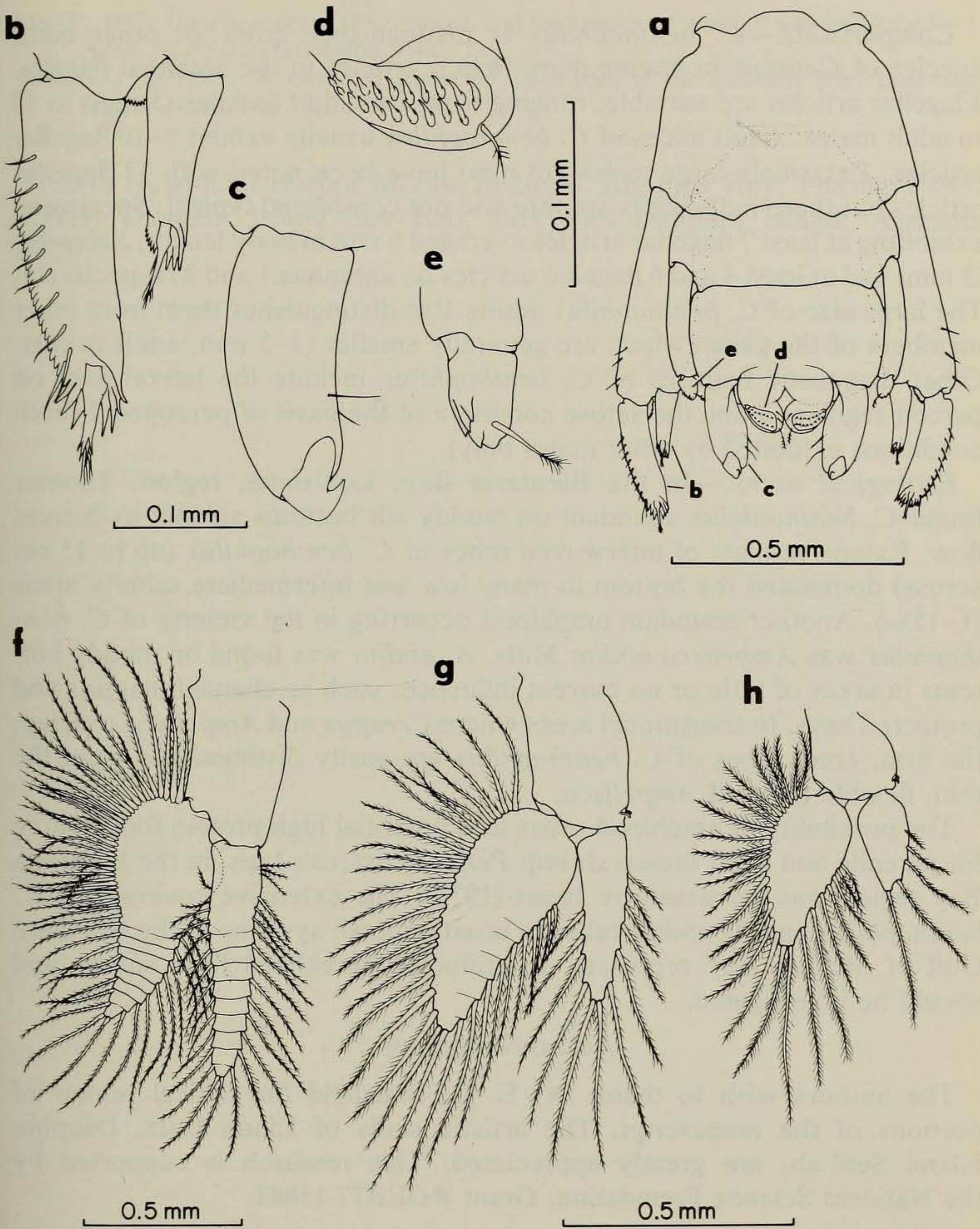


Fig. 4. *Cerapus benthophilus*, sp. nov. Male. a, urosome; b, uropod 1; c, uropod 3; d, telson; e, uropod 2; f, pleopod 1; g, pleopod 2; h, pleopod 3.

Comparisons.—*C. benthophilus* is distinguished from all other adult species of *Cerapus* in having more than 6 articles in the antennal flagella. Flagellar articles are variable, ranging from 7 in adult females (5 mm) to 12 in adult males. Adult males of *C. benthophilus* usually exhibit 9–10 flagellar articles. Extremely large males (13 mm) have been noted with 12 flagellar articles but these individuals are rare and not considered typical. Specimens exhibiting at least 7 flagellar articles averaged 6 mm in body length. Juveniles (3 mm) had at least 4 and 6 flagellar articles on antennae 1 and 2 respectively. The large size of *C. benthophilus* adults also distinguishes them from other members of the genus which are generally smaller (3–5 mm, adult males). Other diagnostic features of *C. benthophilus* include the lateral keel on pereon segment 1 and the setose condition of the basis of pereopod 2 (both conditions exhibited by adult males only).

Ecological notes.—In the Barataria Bay, Louisiana, region, Thomas found *C. benthophilus* abundant on muddy silt bottoms subject to current flow. Extensive mats of interwoven tubes of *C. benthophilus* (up to 15 cm across) dominated the bottom in many low and intermediate salinity areas (1–15‰). Another abundant amphipod occurring in the vicinity of *C. benthophilus* was *Ampelisca abdita* Mills. *A. abdita* was found on muddy bottoms in areas of little or no current influence, such as channel margins and protected bays. In transitional areas where *Cerapus* and *Ampelisca* overlap, the firm, erect tubes of *C. benthophilus* are easily distinguished from the thin, flexible tubes of *Ampelisca*.

The possibility of amphipod tubes as a potential high-protein food source for juvenile and adult brown shrimp *Penaeus aztecus* Ives, in the Barataria Bay region was discussed by Jones (1973). The extensive coverage of *C. benthophilus* and *A. abdita* tubes in coastal marsh systems of the Northern Gulf of Mexico may represent a heretofore unrealized food source and should be investigated.

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