

GENERIC REVISION OF *MASTOBRANCHUS* AND  
*PERESIELLA* (POLYCHAETA: CAPITELLIDAE) WITH  
DESCRIPTIONS OF TWO NEW SPECIES FROM THE  
GULF OF MEXICO AND ATLANTIC OCEAN

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*Abstract.*—Two new species of capitellid polychaetes from the Gulf of Mexico and Atlantic Ocean are described: *Mastobranchnus variabilis* and *Peresiella spathulata*. Emended diagnoses for these genera are proposed. Two species currently assigned to *Mastobranchnus*, *M. dollfusi* Fauvel, 1936, and *M. indicus* Southern, 1921, are considered incertae sedis. Keys to the species of *Mastobranchnus* Eisig, 1887, and *Peresiella* Harmelin, 1968, are presented.

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From 1975 to 1981 the Bureau of Land Management (BLM; now Mineral Management Services) funded several large scale benthic studies of the Gulf of Mexico outer continental shelf. The polychaete fauna from these benthic collections was examined in great detail in a taxonomic standardization program conducted by Barry A. Vittor and Associates, Mobile, Alabama; an atlas of Gulf of Mexico polychaetes was published by this firm in mid-1984. The BLM-OCS samples yielded numerous undescribed taxa in several polychaete families. Two of the new species of Capitellidae encountered during the polychaete standardization program are described in this paper; these capitellids were collected from the MAFLA (Mississippi, Alabama and Florida) and SOFLA (Southwest Florida) study areas. In the course of examining the BLM material, additional specimens of these new taxa were found in benthic samples collected by Interstate Electronics Corporation (IEC) at dredged material disposal sites off Florida, North Carolina, and Puerto Rico. Several specimens of one of these species, collected near Hutchinson Island, Florida by the Florida Department of Natural Resources, were also examined.

Description of these species necessitated generic revisions of *Mastobranchnus* Eisig, 1887, and *Peresiella* Harmelin, 1968. The generic diagnoses and dichotomous keys provided in this paper reflect only adult characters.

Type-specimens are deposited in the National Museum of Natural History (USNM), Smithsonian Institution, Washington, D.C., and the Allan Hancock Foundation (AHF), University of Southern California, Los Angeles, California.

Family Capitellidae Grube, 1862

Genus *Mastobranchnus* Eisig, 1887, emended

*Type-species.*—*Mastobranchnus trinchessii* Eisig, 1887.

*Diagnosis.*—Thorax with achaetous peristomium and 11 setigerous segments. First setiger with or without neurosetae. Setigers 1-9 with capillary setae only; last 2 thoracic segments with capillary setae only or hooded hooks only. Two or

more abdominal notopodia with mixed fascicles of capillary setae and hooded hooks; abdominal neuropodia with hooks only.

*Remarks.*—Gallardo (1968) noted that the two species added to *Mastobranchnus* after its original description, *M. dollfusi* Fauvel, 1936, and *M. indicus* Southern, 1921, have combinations of characters clearly not within this genus.

*Mastobranchnus dollfusi* is described as having an achaetous peristomium, followed by an incomplete first setiger with capillary setae in notopodia only, 12 thoracic setigers with capillary setae only in both rami and a transitional segment (setiger 14) with capillary notosetae and neuropodial hooded hooks; however, there are no abdominal segments with mixed fascicles of capillary setae and hooks in the notopodia, an important diagnostic character of the genus *Mastobranchnus*. The setal pattern of *M. dollfusi* fits that of the genus *Leiocapitella*; in fact, its specific setal formula is presently occupied by another species, *L. glabra* Hartman, 1947. However, the palmate branchiae characteristic of *M. dollfusi* (see Fauvel 1936, fig. 11) are not known in *Leiocapitella*. For these reasons, *M. dollfusi* is herein considered incertae sedis.

*Mastobranchnus indicus* was described from a single incomplete specimen. This species has 11 biramous thoracic setigers with capillary setae only; setigers 12 and 13 are transitional with capillary notosetae and neuropodial hooded hooks; following segments have hooks only in both rami. The specific setal arrangement of *M. indicus* does not fit that of any presently recognized capitellid genus. In the author's opinion it would be inadvisable to erect a new genus for a species described from a single, incomplete specimen; *M. indicus* is therefore regarded as incertae sedis.

*Mastobranchnus variabilis*, new species

Fig. 1 a–e

*Mastobranchnus* sp. A.—Ewing, 1984: 14–35, figs. 14–30a–f.

*Material Examined.*—GULF OF MEXICO: off Alabama: MS 694, 30°04'14"N, 87°53'50"W, 13.4 m, sand, 11/80, 1 spec.; off Florida: IEC 713TB-003, 27°37.1'N, 82°54.0'W, 12 m, clean sand, 10/79, 1 spec.; IEC 713TB-004, 27°37.1'N, 82°55.1'W, 10 m, clean sand, 10/79, 5 spec.; IEC 713TB-005, 27°38.1'N, 82°55.1'W, 12 m, clean sand, 10/79, 2 spec.; IEC 713TB-006, 27°37.1'N, 82°58.0'W, 17 m, clean sand, 10/79, 5 spec.; IEC 723TB-003, 27°37.1'N, 82°54.0'W, 12 m, clean sand, 1/80, 3 spec.; IEC 723TB-004, 27°37.1'N, 82°55.1'W, 10 m, clean sand, 1/80, 3 spec. (Paratypes, AHF Poly 1369); IEC 723TB-006, 27°37.1'N, 82°58.0'W, 17 m, clean sand, 1/80, 1 spec.; IEC 723TB-007, 27°36.5'N, 82°55.8'W, 12 m, clean sand, 1/80 (Holotype, USNM 81993); SOFLA 2, 26°45.84'N, 82°45.18'W, 24 m, medium sand, 5/81, 2 spec. (USNM 75248); SOFLA 14, 25°46.01'N, 82°23.82'W, 26 m, fine sand, 7/81, 1 spec. (USNM 75244); SOFLA 28, 24°47.11'N, 83°13.08'W, 58 m, fine sand, 11/80, 1 spec. (USNM 75249); MAFLA 2318, 29°05'00.8"N, 83°45'00.0"W, 20 m, medium sand, 1/76, 1 spec.; MAFLA 2419, 29°46'59.8"N, 84°05'00.2"W, 10 m, fine sand, 8/77, 1 spec.; same location, 11/77, 1 spec. (USNM 75152); MAFLA 2528, 29°54'58.6"N, 86°04'58.5"W, 37 m, coarse sand, 9/75, 2 spec.; MAFLA 2531, 29°47'58.9"N, 86°09'28.9"W, 45 m, coarse sand, 2/76, 1 spec.; same location, 8/77, 2 spec.; MAFLA 2855, 30°08'02.1"N, 86°30'00.0"W,

40 m, medium sand, 8/77, 1 spec.; ATLANTIC OCEAN: off Florida: Hutchinson Island: HI-290, sta. 5, 27°22'22"08"N, 80°13'46"W, 10.3 m, coll. by D. Beaumariage, P. Camp and R. Gallagher, 5/10/72, 2 spec. (Paratypes, USNM 81994); HI-785, same coordinates, 9.7 m, coll. by C. Futch, W. Jaap and R. Gallagher, 7/9/73, 2 spec.; off North Carolina: IEC 733WL-010, 33°43.8'N, 78°01.0'W, 10 m, clean sand, 7/80, 1 spec.

*Description.*—Length of holotype approximately 47 mm, width 0.6 mm, 116 setigerous segments. Lengths of 8 additional complete specimens range from 16 to 73 mm, widths 0.4 to 1.3 mm, setigers 50 to 112.

Color light tan to reddish brown in alcohol; juveniles with dark brown pigment spots scattered over most of body. Thorax slightly inflated through setiger 4 (Fig. 1a). Thoracic epithelium smooth to faintly tessellate through setiger 4, thereafter smooth except for wrinkles of contraction. Abdominal segments smooth with glandular parapodial tori.

Prostomium long, broadly conical in dorsal view, binannulate; pair of nuchal slits at proximal margin; conspicuous elongate ocular patches on dorsal surface. Achaetous peristomium wider than long, approximately same length as following segment. Eversible pharynx bulbous, smooth on entire surface. Setigers 1–3 about 3 times wider than long, thereafter segments gradually increase in length to end of thorax (Fig. 1a). Anterior notopodia dorsolateral, well separated, but approach middorsally by setiger 10–11; neuropodia ventrolateral in position throughout thorax.

Number of setae per fascicle proportional to body size; setiger 1 with 4–6 capillary setae per fascicle, thereafter increasing to as many as 20 per fascicle in last thoracic segment. Nephridial apertures (1 pair on each segment) located in segmental groove following each of last 5 thoracic and first abdominal segments. Lateral organs present on all thoracic setigers as a minute ciliated pore between noto- and neuropodium, increasing in size toward abdomen; appearing as conspicuous ovoid tuft of cilia just beneath notopodial tori in abdominal segments. Transition from thorax to abdomen distinct, marked by change in notopodia from capillary setae to mixed fascicles and in neuropodia from capillary setae to hooded hooks (in adults), slight broadening of segments, and appearance of glandular neuropodial tori.

Anterior abdominal segments approximately same length as those of posterior thorax, gradually lengthening to midabdominal region where they are 2 to 3 times as long as wide; thereafter segments becoming increasingly shorter; far posterior segments usually strobiliform.

Branchiae from mid- to posterior abdominal region (about setiger 67 in holotype) as eversible palmate tufts of 5–8 digitate filaments emerging posterior to notopodial tori (Fig. 1b).

Abdominal notopodia with mixed fascicles of 10–20 capillary setae and 3–8 hooded hooks through all or most of abdomen; notopodia in posterior third of abdomen often with hooks only. Occasionally notosetae absent in last few segments. Abdominal neuropodia with hooks only on slightly elevated glandular tori; hook rows separated by shallow midventral groove; first abdominal segment with 6–10 hooks per fascicle, increasing in number to as many as 35 hooks per fascicle and then decreasing to 1–2 hooks in far posterior setigers. Hooded hooks mul-

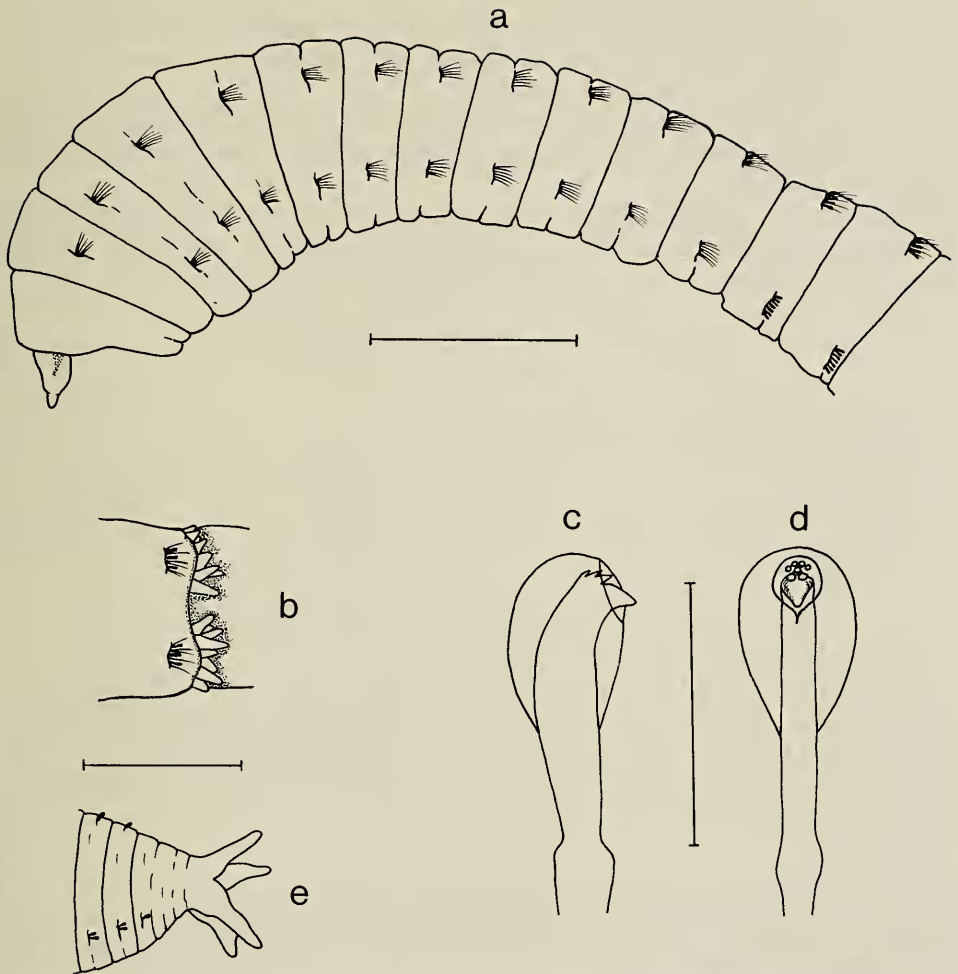


Fig. 1. *Mastobranthus variabilis*: a, Lateral view of anterior end showing thorax and first 2 abdominal segments; b, Dorsal view of midabdominal segment showing everted branchiae; c-d, Lateral and frontal views of neuropodial hooded hook from abdomen; e, Lateral view of pygidium. Scales = 0.5 mm for a, b, e; 0.035 mm for c, d.

tidentate, consisting of main fang surmounted by 7-8 teeth arranged in 3 rows (Fig. 1c, d); hooks in notopodia and neuropodia similar in crown structure and total length although shafts of notopodial hooks frequently extend further out of body, giving appearance that these setae are longer. Subtle variations in structure of these hooks were observed (i.e., relative sizes and location of denticles).

Pygidium conical with 3-4 digitiform caudal cirri (Fig. 1e).

*Remarks.*—Considerable variations from the thoracic setal arrangement of adults were observed in small specimens of *Mastobranthus variabilis*. Mixed setal fascicles or hooded hooks only rarely appeared in the last 1-2 notopodia. Neuropodia of the last 4 thoracic segments were found with capillary setae only, hooks only, or mixed setal fascicles.

*Mastobranthus variabilis* has a first setiger without neuropodia. The other two species of *Mastobranthus*, *M. trinchessii* Eisig, 1887, and *M. loii* Gallardo, 1968, have both noto- and neuropodia on setiger 1.

*Etymology*.—The specific name refers to the size-related differences in the thoracic setal arrangement of *Mastobranthus variabilis* (Latin “variabilis” meaning variable or changeable).

*Distribution*.—*Mastobranthus variabilis* was collected from sandy sediments in the northeast Gulf of Mexico off Alabama and Florida and in the Atlantic Ocean off Florida and North Carolina; known depth range 9.7 to 58 m.

#### Key to the Species of *Mastobranthus*

1. Setiger 1 with notopodia only ..... *M. variabilis*
- Setiger 1 with both noto- and neuropodia ..... 2
2. Last 2 thoracic setigers with hooded hooks only in noto- and neuropodia  
..... *M. loii*
- Thorax with capillary setae only ..... *M. trinchessii*

#### Genus *Peresiella* Harmelin, 1968, emended

*Type-species*.—*Peresiella clymenoides* Harmelin, 1968.

*Diagnosis*.—Thorax with an achaetous peristomium and 11 setigerous segments. First 3 setigers with capillary setae only; setiger 1 without neurosetae; following 2 setigers biramous; remaining thoracic segments (setigers 4–11) biramous with modified spatulate setae, capillary setae or hooded hooks. Abdominal parapodia with hooded hooks only in both rami.

#### *Peresiella spathulata*, new species

Fig. 2a–e

*Peresiella* sp. A—Ewing, 1984:14–13, figs. 14–8a–e.

*Material Examined*.—ATLANTIC OCEAN: off Puerto Rico: IEC 724SJ-001, 18°30.7'N, 66°09.0'W, 257 m, sandy mud, 1/80 (Holotype, USNM 81995); IEC 724SJ-002, 18°30.7'N, 66°08.5'W, 261 m, mud, 1/80, 1 spec.; IEC 724SJ-003, 18°30.2'N, 66°09.0'W, 220 m, sandy mud, 1/80 (Paratype, USNM 81996); IEC 724SJ-005, 18°31.2'N, 66°09.0'W, 279 m, mud, 1/80, 2 spec.; IEC 724SJ-010, 18°30.7'N, 66°11.6'W, 210 m, mud, 1/80, 1 spec.; IEC 731SJ-003, 18°30.2'N, 66°09.0'W, 220 m, sandy mud, 6/80, 1 spec.; IEC 731SJ-005, 18°31.2'N, 66°09.0'W, 279 m, mud, 6/80, 1 spec. GULF OF MEXICO: off Florida: SOFLA 18, 25°45.37'N, 83°42.22'W, 87 m, medium sand, 4/81, 1 spec. (USNM 75252); MAFLA 2105, 26°24'59.5"N, 83°49'57.6"W, 90 m, coarse sand, 6/75, 1 spec.; MAFLA 2106, 26°24'56.8"N, 84°15'00.0"W, 168 m, silty very fine sand, 5/75, 1 spec.; MAFLA 2212, 27°57'00.0"N, 84°47'59.6"W, 189 m, silty very fine sand, 8/77, 1 spec.; same location, 11/77, 1 spec.; MALFA 2426, 28°57'59.4"N, 85°23'00.2"W, 82 m, fine sand, 6/75, 2 spec.; MAFLA 2645, 29°35'00.5"N, 27°20'02.2"W, 106 m, coarse sand, 6/75, 1 spec. (USNM 75158).

*Description*.—Holotype an incomplete gravid female (18  $\mu$ m ova), length approximately 19 mm, width 0.5 mm, 40 setigerous segments. Lengths of 15 ad-

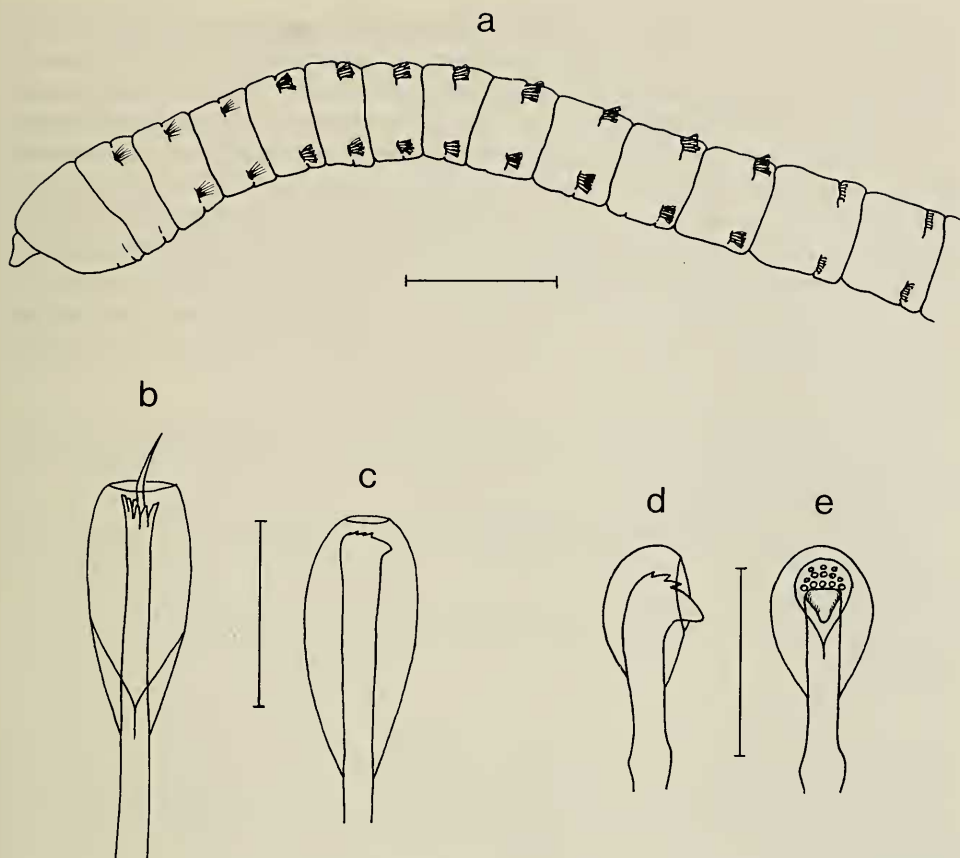


Fig. 2. *Peresiella spathulata*: a, Lateral view of anterior end showing thorax and first 2 abdominal segments; b, Frontal view of spatulate seta; c, Lateral view of thoracic hooded hook; d-e, Lateral and frontal views of neuropodial hooded hook from abdomen. Scales = 0.5 mm for a; 0.025 mm for b-e.

ditional incomplete specimens ranged from 4 to 8 mm, widths 0.3 to 0.5 mm, with up to 36 setigers.

Color light tan in alcohol. Thorax slightly inflated through setiger 2 (Fig. 2a). Thoracic epithelium smooth to faintly tessellate with glandular ring around posterior half of setiger 11. Entire surface of first 2-3 abdominal segments glandular in appearance (on unstained specimens), thereafter segments smooth anterior to setal fascicles and glandular on posterior margin.

Prostomium conical in dorsal view, tapering to bluntly rounded tip, often partly withdrawn under peristomium; paired nuchal slits at posterolateral margin; eyes absent. Achaetous peristomium slightly longer than wide, approximately twice as long as first setigerous segment. Eversible pharynx bulbous, sparsely papillate on distal half, smooth proximally. Setigers 2-3 approximately 3 times as wide as long, thereafter segments increase in length with last thoracic setiger about as wide as long (Fig. 2a).

Anterior 3 setigers with 4-6 capillary setae per fascicle. Remaining thoracic setigers (of holotype) with 6-8 modified setae per fascicle in both rami; modified

setae elongate, spatula-shaped with truncate hood and short arista (often broken off) extending from end of shaft through hood aperture (Fig. 2b). In smaller individuals last thoracic segment (setiger 11) may have mixed noto- and neuropodial fascicles of 4–6 spatulate setae and hooded hooks or hooks only. These thoracic hooks (Fig. 2c) transitional in structure between spatulate setae of preceding segments and typical capitellid-like hooks on following abdominal segments: hood usually slightly truncate rather than rounded; hood aperture distal to, rather than at right angle to shaft; crown not well developed, with reduced main fang and minute, barely discernible denticles; length of shaft intermediate between that of elongate spatulate setae and shorter abdominal hooks. Nephridial apertures and lateral organs not observed. Transition from thorax to abdomen marked by noticeable change in setal type (or structure of hooded hooks) and slight increase in number of neurosetae per fascicle.

First 1–2 abdominal segments approximately same length as last thoracic segment, thereafter segments gradually increasing in length. Branchial structures presumably absent. Pygidium not observed.

Abdominal parapodia with multidentate hooded hooks only in both rami, emerging from slightly elevated glandular ridges; notopodia dorsal in position with 6–8 notosetae per fascicle on narrowly separated tori; neuropodia ventrolateral with 7–11 hooks per fascicle. Under ordinary light microscopy hooded hooks appear to consist of large main fang surmounted by 10–13 teeth arranged in 3–4 rows (Fig. 2d, e). SEM reveals microstructure of these hooks more complex, with at least 20 teeth in numerous rows above main fang; in posterior view these hooks have many additional, irregularly arranged minute denticles (micrographs not shown). With the exception of minor differences in the number of teeth in the crown area of the hook, these setae do not vary in structure throughout the abdomen.

*Remarks.*—In an earlier study the author noted that this species (reported as *Peresiella*, sp. A; Ewing, 1984) had hooded hooks only in the last thoracic setiger. Later examination of additional material revealed that the largest specimen, an ovigerous female, had spatulate setae only on this segment and that smaller individuals had mixed setal fascicles or “transitional” hooks only on the last thoracic segment. The suggestion is, of course, that these hooks (on setiger 11) are present only in juveniles and are then replaced by modified spatulate setae during growth of the individual.

*Peresiella spathulata* differs considerably from the other two known species of *Peresiella*, *P. clymenoides* Harmelin, 1968, and *P. acuminatobranchiata* Thomassin, 1970. The type-species, *P. clymenoides*, has a thorax with capillary setae on setigers 1–3 and spatulate setae on the following 8 segments (setigers 4–11); this thoracic setal arrangement is identical to that of *P. spathulata*. However, the anterior end of *P. clymenoides* differs sharply from the usual pattern of the Capitellidae, i.e., the first and second segments are obliquely flattened, resembling the cephalic plate of many malidanids (see Harmelin 1968: pl. II). *Peresiella spathulata* is further distinguished from *P. clymenoides* in that the latter has neuropodial hooks on setigers 12–13 with a slender, extremely curved main fang, noticeably different from other abdominal hooks; noto- and neuropodial hooks are similar in structure throughout the abdomen of *P. spathulata*.

*Peresiella acuminatobranchiata* has two thoracic segments with modified setae,

which according to original illustrations (Thomassin 1970: fig. 3) resemble blunt-tipped, slightly curved acicular spines enveloped by a hood; *P. acuminatobranchiata* also has nonretractile, acuminate branchial processes beginning on anterior abdominal segments. *Peresiella spathulata* has 7–8 setigers with modified, spatula-shaped setae and no apparent parapodial (branchial) extensions.

*Etymology.*—The specific name refers to the shape of the modified thoracic setae (Latin “spatulata” meaning spatulate).

*Distribution.*—*Peresiella spathulata* was collected in the Gulf of Mexico off Florida and in the Atlantic Ocean off Puerto Rico at depths of 87–279 m. The species is known to inhabit a wide range of sediment types from mud to coarse sand.

Key to the species of *Peresiella*

- 1. Two thoracic segments with modified setae; branchial structures present  
 ..... *P. acuminatobranchiata*
- At least 7 thoracic segments with modified setae; branchiae absent .... 2
- 2. Anterior end modified like an oblique cephalic plate; abdominal hooks of  
 2 distinct types ..... *P. clymenoides*
- Anterior end capitellid-like, not modified; all abdominal hooks similar in  
 structure ..... *P. spathulata*

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