

ADDITIONAL RECORDS OF POLYNOID POLYCHAETES FROM THE JUAN DE FUCA RIDGE

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Abstract. — Additional specimens of two polynoid polychaetes, *Bathycatalina filamentosa* (Moore) (Macellicephalinae), and *Harmothoe macnabi* Pettibone (Harmothoniae), were collected from a new vent site on the Juan de Fuca Ridge. Based on these materials, both the subfamily Macellicephalinae and genus *Bathycatalina* are emended, the former to include *Bathylevensteinia bicornis* (Levenstein) and *Gesiella jameensis* (Hartmann-Schröder), and the descriptions of *B. filamentosa* and *H. macnabi* supplemented.

A grab-sample of *Ridgia* tube-worms was taken from an isolated black smoker during the *Atlantic/Alvin* cruises to the Juan de Fuca Ridge in October 1993. Polynoid polychaetes obtained from the sample were sent to me for identification, and found to be *Bathycatalina filamentosa* (Moore) (Macellicephalinae), and *Harmothoe macnabi* Pettibone (Harmothoniae). Descriptions of both species are supplemented based on these additional materials. The genus *Bathycatalina* Pettibone is emended, and the Subfamily Macellicephalinae is also emended to include *Gesiella jameensis* (Hartmann-Schröder), and *Bathylevensteinia bicornis* (Levenstein).

Specimens are deposited in the Department of Invertebrate Zoology, National Museum of Natural History, Smithsonian Institution (USNM).

Family Polynoidae Kinberg, 1856

Subfamily Macellicephalinae Hartmann-Schröder, 1971, emended Pettibone, 1976.

Additions and emendations were added to the Subfamily Macellicephalinae Hartmann-Schröder, 1971, by Pettibone (1976: 6; 1985a:129; 1985b:740; 1989:159; & 1993: 679). Two new genera and species that were placed in the Subfamily Harmothoniae Horst, 1917, by Pettibone (1976:60) are

herein included in the Subfamily Macellicephalinae, based on previous incorrect interpretations of the structures on the anterior lobes of the prostomia, as lateral antennae, rather than as anterior rounded-filiform extensions and not distinct lateral antennae. They include *Bathylevensteinia* Pettibone, 1976, with *B. bicornis* (Levenstein, 1962) and *Gesiella* Pettibone, 1976, with *G. jameensis* (Hartmann-Schröder, 1974).

Bathylevensteinia bicornis (Levenstein, 1962)

Macellicephalina bicornis Levenstein, 1962: 1143, fig. 1.1), in Macellicephalinae.
Bathylevensteinia bicornis. — Pettibone, 1976:62, fig. 35a-e, in Harmothoniae.

Remarks. — *Bathylevensteinia bicornis* was incorrectly placed in Harmothoniae, due to an incorrect interpretation of the so-called bifurcate frontal horns on the prostomium by Levenstein. Pettibone referred to the bilobed prostomium with subtriangular frontal horns, and, more medially, lateral antennae with cylindrical ceratophores with styles missing. However, the medial processes are on the same level as the lateral frontal horns, not ventral, and terminal styles are absent, thus not distinct lateral antennae.

Gesiella jameensis
(Hartmann-Schröder, 1974)

Macellicephala (Macellicephala) jameensis
Hartmann-Schröder, 1974:76, figs. 1–8,
in *Macellicephalinae*.

Gesiella jameensis. — Pettibone, 1976:64, fig.
36a–j, in *Harmothoinae*. — Muir, 1982:
156, in *Gesiellinae* Muir, 1982.

Remarks. — The small spherical lobes with distal filaments on the prostomium are not to be considered as distinct lateral antennae, as indicated by Pettibone (1976:64). The presence of unique filamentous sensory organs on the cirrophores of the dorsal cirri, the basis for *Gesiellinae* by Muir (1982) does not seem to merit a separate Subfamily.

Genus *Bathycatalina*
Pettibone, 1976, emended

Type species. — *Polynoe (?) filamentosa* Moore, 1910, by original designation and monotypy. Type locality: Southern California, off Santa Catalina Island, in 611–1097 m.

Remarks. — Based on an additional specimen from Juan de Fuca Ridge, referred herein to *B. filamentosa*, the genus is emended as follows: Body with 24 segments, last three small, with 11 pairs of elyptrophores (not 12 pairs), on segments 2, 4, 5, 7, 9, 11, 13, 15, 17, 19, 21. Bilobed prostomium with rounded frontal processes and terminal filaments (not distinct lateral antennae, damaged on holotype); palps very long (missing on holotype). Pharynx with nine pairs of papillae (damaged on holotype).

Bathycatalina filamentosa (Moore, 1910)
Fig. 1

Polynoe (?) filamentosa Moore, 1910:366,
pl. 31:figs. 52–56.

Bathycatalina filamentosa. — Pettibone,
1976:38, fig. 23a–e.

Material. — Juan de Fuca Ridge,
46°09.3'N, 129°48.4'W, 2059 m, *Alvin* Dive

2681 in 273°C Beard Chimney, 24 Oct 1993,
C. van Dover, collector, from V. Tunnicliffe,
1 specimen (USNM 169153).

Description. — Length 15 mm, width with setae 8 mm, segments 24, last three very small. Elytra (all missing except very small elytra on segment 21) and bulbous elyptrophores 11 pairs, on segments 2, 4, 5, 7, 9, 11, 13, 15, 17, 19, 21. Dorsal cirri on non-elytrigerous segments; cirrophores long, cylindrical, with long styles; dorsal tubercles elongate, forming digitiform ciliated brachial-like processes; some long clavate sensory papillae on dorsal cirrophores (Fig. 1A, B, F).

Prostomium deeply bilobed, rounded anterior lobes, with subconical processes and terminal filaments; ceratophore of median antenna in anterior notch of prostomium, large, cylindrical, style missing; palps very long; without eyes; tentaculophores of segment 1 lateral to prostomium, with few notosetae on inner sides and two pairs of tentacular cirri (missing) (Fig. 1A). Segment 2 with first pair of elyptrophores, biramous parapodia, and long ventral buccal cirri, longer than following ventral cirri (Fig. 1A). Biramous parapodia with both notopodial and neuropodial rami subequal in size and length, with projecting acicular processes (Fig. 1C). Notosetae numerous, stout, forming radiating bundles, short and longer, some as long as neurosetae, with spinous rows and blunt bare tips (Fig. 1C, D). Neurosetae very numerous, forming dense brushlike bundles, thin, transparent, flattened distally, paddle-like, with serrated margins (Fig. 1C, E). Ventral cirri short, tapered (Fig. 1C). Posterior end with pygidium rounded, enclosed in small posterior parapodia (segments 22–24); cirrophores of dorsal cirri with clavate sensory papillae (Fig. 1B). Long extended pharynx encircled with nine pairs of dorsal and ventral papillae and two pairs of inner jaws (Fig. 1A). Groups of large yolky eggs attached to ventral surfaces of parapodia on some posterior segments.

Distribution. — Northeastern Pacific, off Southern California (Santa Catalina Island),

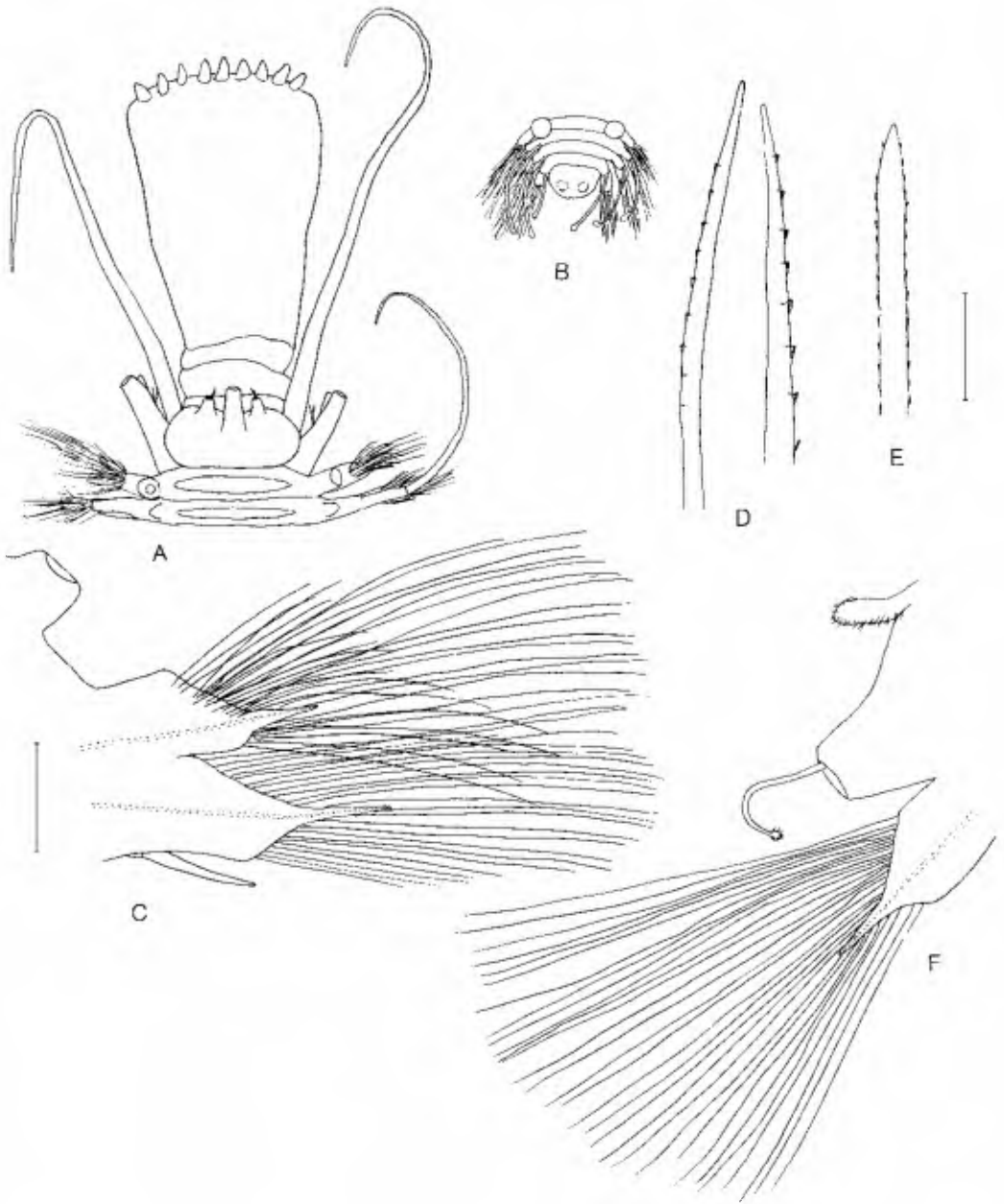


Fig. 1. *Bathycatalina filamentosa* (USNM 169153): A, Dorsal view of anterior end, with pharynx fully extended; styles of median antenna, dorsal and ventral tentacular cirri, elytra of segment 2, and left dorsal cirrus of segment 3 missing; B, Dorsal view of posterior end (segments 21-24), dorsal cirri missing, long clavate sensory papillae on cirrophores; C, Left elytrigerous parapodium of segment 5, anterior view, acicula dotted, elytron missing; D, Short and distal tip of long notosetae from same; E, Distal tip of flattened neuroseta from same; F, Right cirriferous notopodium, anterior view, showing cirrophore of dorsal cirrus with sensory clavate papilla (style missing) and ciliated branchial process on dorsal tubercle. Scales = 0.5 mm for C, F; 0.1 mm for D, E; A, B, not to scale.

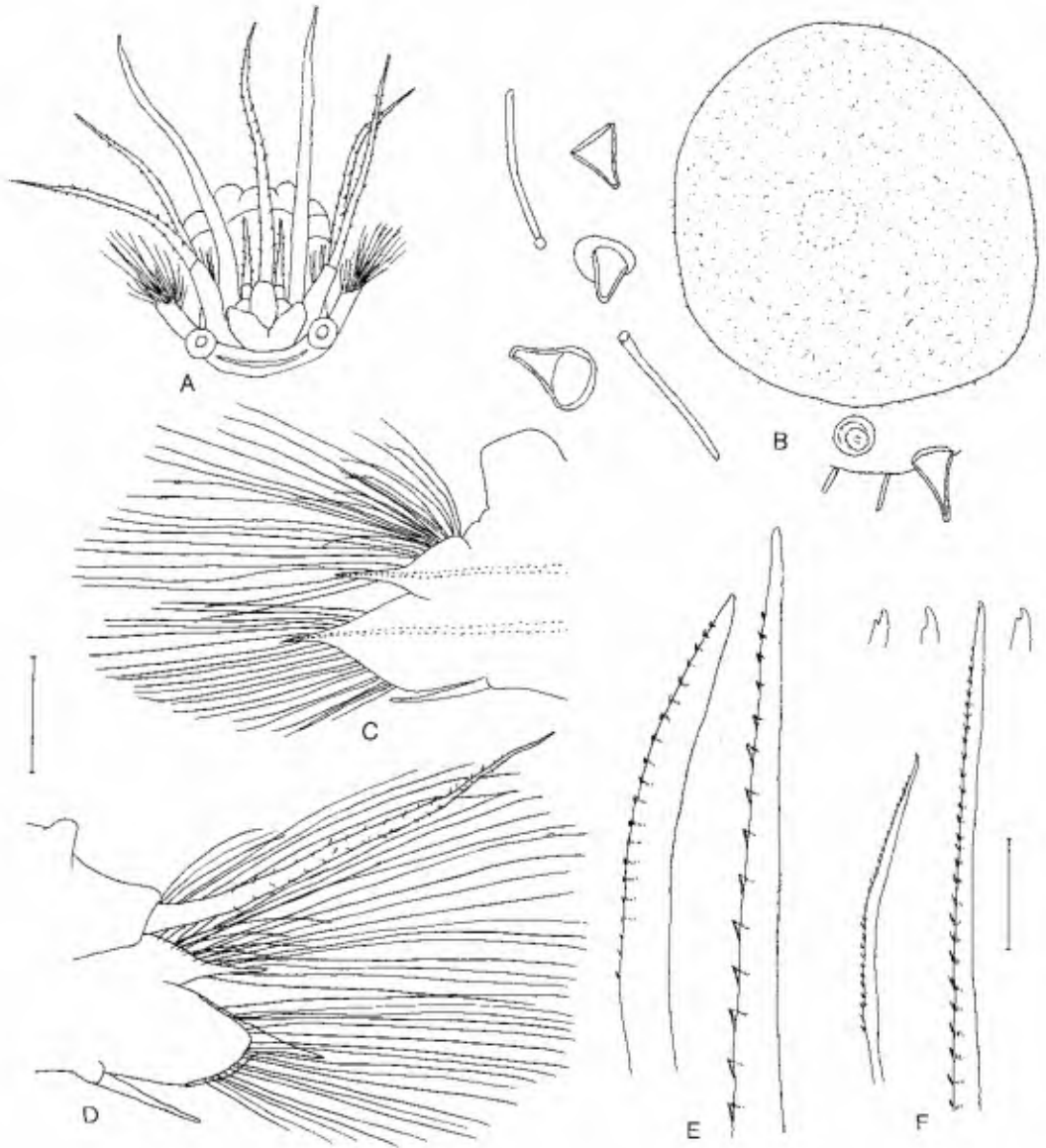


Fig. 2. *Harmothoe macnabi* (USNM 169154): A, Dorsal view of anterior end, pharynx partially extended; B, Right first elytron from segment 2, with detail of microtubercles, surface and border papillae; C, Right elytrigerous parapodium, anterior view, acicula dotted; D, Right cirriferous parapodium, posterior view; E, Short and distal end of long notosetae from same; F, Lower and middle neurosetae from same, with detail of some tips. Scales = 0.5 mm for B-D; 0.1 mm for E, F; A, not to scale.

in 611-1097 m, and Juan de Fuca Ridge, off British Columbia, in 2059 m.

Remarks. — *Bathycatalina filamentosa* shows affinities to *Gesiella jameensis*. Both species have the unique clavate sensory papillae on the dorsal cirrophores of the cir-

riferous segments. *G. jameensis* has fewer segments (18-19) and elytriphores (nine pairs) and the notopodia are much shorter than the neuropodia. Ciliated cirriform branchial structures on the dorsal tubercles of *B. filamentosa* are also found on *Bathy-*

fauvelia affinis (Fauvel) and *Bathybahamas charleneae* Pettibone. (See Key to the three species in Pettibone, 1985a; 141). Dorsal tubercles are indistinct in *G. jameensis*.

Subfamily Harmothoinae Horst, 1917
Genus *Harmothoe* Kinberg, 1856
Harmothoe macnabi Pettibone, 1985
Fig. 2

Harmothoe macnabi Pettibone, 1985b:749, figs. 6, 7.

Material.—Juan de Fuca Ridge, 46°09.3'N, 129°48.4'W, 2059 m, *Alvin* Dive 2681 in 273° Beard Chimney, 24 Oct 1993, C. van Dover, collector, from V. Tunnicliffe, 2 specimens (USNM 169154).

Remarks.—The two specimens agree for the most part with the holotype from the Galapagos Rift in 2482 meters.

Description.—Complete specimen 12 mm long, 8 mm wide with setae, and 30 segments, last three very small; incomplete specimen 10+ mm long, 9 mm wide, and 15+ segments; (holotype much larger: 33 mm long, 14 mm wide with setae, and 31 segments, last three small). Body showing brownish pigmentation: on distal tips of buccal and ventral cirri, along lateral sides of ventral nerve cord, and dark pharynx showing through body wall.

Elytra and bulbous elytriphores 14 pairs, on segments 2, 4, 5, 7, alternate segments to 23, 26, 29. Elytra missing, except for first right elytron on segment 2 and very small elytra on segments 19 and 23; remaining large elytron round and covered with conical microtubercles and scattered long surface papillae and short border papillae (Fig. 2B). Dorsal cirri and non-elytrigerous segments, with short cylindrical cirrophores and long papillate styles extending beyond tips of setae; dorsal tubercles nodular (Fig. 2D).

Bilobed prostomium wider than long, with subtriangular cephalic peaks; median antenna with large ceratophore in anterior notch of prostomium; lateral antennae with distinct ceratophores inserted ventrally,

styles papillate, about length of prostomium; without eyes; stout palps slightly longer than median antenna; tentaculophores (segment 1) lateral to prostomium, each with three or four setae on inner side and papillate dorsal and ventral tentacular cirri, slightly shorter than median antenna (Fig. 2A). Segment 2 with first pair of bulbous elytriphores, biramous parapodia, and long ventral papillate buccal cirri, much longer than following ventral cirri (Fig. 2A).

Biramous parapodia with notopodia rounded basally, with projecting acicular processes on lower sides, about as long as neuropodia; neuropodia with conical anterior lobes and projecting acicular processes and rounded posterior lobes (Fig. 2C, D). Notosetae numerous, forming radiating bundles, much stouter than neurosetae, short, slightly curved to longer, straight, with spinous rows and tapered bare tips (Fig. 2E). Neurosetae numerous, slender, with faint spinous rows and bare, slightly hooked tips with small subterminal tooth; lower ones with entire curved tips (Fig. 2F). Ventral cirri short, tapered, with slender tips (Fig. 2C, D). Some eggs in parapodia medial to bases of ventral cirri.

Distribution.—East Central Pacific in Galapagos Rift, in 2482 m and North Pacific in Juan de Fuca Ridge, 2059 m.

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