**Table S3** Characters of the 10 *Branchipolynoe* species.

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| **Species** | **Postomium** | **Elytra** | **Frontal filaments** | **First branchiae** | **Branchiae** | **Dorsal cirri** | **Parapodium** | **Notopodial** **acicular lobe** | **Notochaetae** | **Supra-acicular** **neurochaetae** | **Subacicular neurochaetae** | **Habitat** | **Host *Bathymodiolus* mussel** |
| *Branchipolynoe symmytilida* |  bilobed | Partially covering parapodia | Minute | Segment 2 | Long | Short | Subbiramous | Rounded, very short | Few, very short | Slightly hooked | Slender, slightly hooked | Vents | *B. thermophilus* & *B. antarcticus* |
| *B. seepensis* |  bilobed | Covering parapodia, dorsum exposed | Absent | Segment 3 | Short, dense | Short | Biramous | Triangular, 1/2 notochaetal length | Several, long | Tapered, blunt tip | Slender, slightly hooked | Seeps | Unknown B. heckerae? |
| *B. pettibonea* |  bilobed | Covering parapodia, dorsum exposed | Absent | Segment 3 | Short, dense | Short | Subbiramous | Digitiform, very short | Few, very short | Slender, slightly hooked | Slightly hooked | Vents & Seeps | *B. brevior*, *B. japonicas*, & *Gigantidas platifrons* |
| *B. longqiensis* |  bilobed | Covering parapodia, dorsum exposed | Absent | Segment 3 | Short, dense | Short | Subbiramous | Straight reaching tip of notochaetae | Few, very short | Stout, slightly hooked | Slender or stout, slightly hooked | Vents & Seeps | *B. marisindicus* |
| *B. eliseae* |  bilobed | Partially covering parapodia | Absent | Segment 2 | Long | Short | Subbiramous | Digitiform, 1/2 notochaetal length | Few, very short | Slender, tapered into rounded tip | Similar to supra-acicular, slightly hooked | Seeps | *B. n. sp. 1* and *2* |
| *B. halliseyae* |  bilobed | Fully or partially covering parapodia | Absent | Segment 2 | Short, dense | Long | Biramous | Straight reaching tip of notochaetae | Several, long | Slender, tapered tip, subdistal swelling | Similar to supra-acicular, shorter subdistal area | Seeps | *B. n. sp. 1–3* |
| *B. kajsae* |  trapezoid | Fully or partially covering parapodia | Absent | Segment 2 | Short, dense | Long | Biramous | Straight, 1/2 notochaetal length | Several, long | Slender, tapered tip, subdistal swelling | Similar to supra-acicular, shorter subdistal area | Seeps | *B. n. sp. 1–3* |
| *B. meridae* |  bilobed | Minute, most of parapodia exposed | Absent | Segment 2 | Long | Short | Subbiramous | Rounded, very short | Few, very short | Stout, straight, subdistal swelling | Slender, rounded tip, longer subdistal area | Seeps | *B. n. sp. 1* and *3* |
| *B. tjiasmantoi* |  bilobed | Covering parapodia, dorsum exposed | Absent | Segment 3 | Short, dense | Short | Subbiramous | Few, very short | Few, very short | Slender, rounded tip, subdistal swelling | Stout, shorter subdistal area | Vents | *Bathymodiolus spp*. Including *B. brevior* |
| *B. onnuriensis* **n. sp** |  bilobed | Covering parapodia, dorsum exposed | Absent | Segment 3 | Short, dense | Short | Subbiramous | Rounded, very short | Few, very short | Slender, rounded tip, subdistal swelling | Stout, shorter subdistal area | Vents | *Gigantidas vrjienhoeki* |