Supplementary Material

**Supplementary Table1.**All known species records from the hadal water depths (>6000 m) of the Java Trench.

| **Class** | **Order** | **Family** | **Species** | **Depth (m)** | **Reference** |
| --- | --- | --- | --- | --- | --- |
| Hexactinellida | Hexasterophora | Unknown | Unknown | 7040-7196 | This study |
| Hydrozoa | Leptothecata | Aglaopheniidae | *Aglaophenia galathea* | 6900-7000 | Kramp 1956 |
| Anthozoa | Actiniaria | Edwardsiidae | *Paraedwardsia lemchei* | 7160 | Carlgren & Bruun 1951 |
|  |  | Galatheanthemidae | aff. *Galatheanthemum* | 7040-7196 | This study |
|  |  | Bathypheliidae | aff. *Bathyphellia* | 7040-7196 | This study |
| Polychaeta | Phyllodocida | Nereididae | *Nereis* sp. sp. | 6935-7060 | Belyaev 1989 |
|  |  | Polynoidae | *Bathyeliasona (M) abyssicola* | 7130-7160 | Kirkegaard 1956 |
|  |  |  | *Macellicephaloides* sp. | 7176 | This study |
|  |  |  | *Polynoidae* sp. | 6820-6850 | Belyaev 1989 |
|  | Drilomorpha | Capitallidae | *Notomastus* sp. sp. | 6820-6850 | Belyaev 1989 |
|  | Terebellida | Flabelligeridae | *Ilyphagus bythincola* | 6730-6850 | Kirkegaard 1956 |
|  |  | Opheliidae | *Travisia glandulosa* | 6740-6850 | Kirkegaard 1956 |
|  |  | Cirratulidae | *Chaetozone* sp*.* | 6935-7060 | Belyaev 1989 |
|  |  |  | *Cossura longocirrata* | 6487 | Belyaev 1989 |
|  |  |  | *Tharyx* sp. sp. | 6820-6850 | Belyaev 1989 |
|  |  | Amparetidae | *Ampharetidae* sp. sp. | 6930-7000 | Kirkegaard 1956 |
|  | Sabellida | Siboglinidae | *Sclerolinum javanicum* | 6820-6850 | Ivanov & Selivanova 1992 |
|  |  |  | *Siboglinum* sp. n 3 | 6841 | Belyaev 1989 |
| Echiuroidae | Bonelliida | Bonelliidae | *Ikedella bogorovi* | 6820-6850 | Zenkevitch 1964 |
| Echinoidea | Spatangoida | Pourtalesiidae | *Echinosigra amphora* sp? | 6433-6850 | Madsen 1956 |
| Ophiuroidea | Ophiurae | Ophiuridae | *Ophiotypa simplex* | 6477-6487 | Madsen 1956 |
|  |  |  | Ophiuroid sp. 1 | 7040-7196 | This study |
|  |  |  | Ophiuroid sp. 2 | 6146 | This study |
| Asteroidea | Paxillosida | Porcellansteridae | *Eremicaster vicinus* | 6433-7000 | Madsen 1956 |
|  |  | Pterasteridae | *Hymenaster* sp. | 7040-7196 | This study |
| Holothuroidea | Apodida | Myriotrochidae | *Prototrochus bruuni* | 6487-7060 | Hansen 1956 |
|  | Elasipodida | Elpidiidae | *Amperima naresi* | 6820-7160 | Hansen 1956 |
|  |  |  | *Amperima cf. naresi* | 7040-7196 | This study |
|  |  |  | *Elpidia hanseni javanica\*\** | 6820-6850 | Hansen 1956 |
|  |  |  | *Elpidia sundensis* | 6433-7160 | Hansen 1956 |
|  |  |  | *Elpidia cf. sundensis* | 7040-7196 | This study |
|  |  | Psychropotidae | *Psychropotes* sp. | 7040-7196 | This study |
|  |  | Pelagothuridae | *Enypniastes* sp. | 7040-7196 | This study |
| Crinoidea | aff. Comatulida | Bathycrinidae | *Bathycrinus* sp*.* | 6433-7060 | Belyaev 1989 |
|  |  | Unknown | Crinoid sp. 1. | 7040-7196 | This study |
|  |  | aff. Bathycrinidae | *Bathycrinus* sp. 2. | 6439 | This study |
| Scaphopoda | Galilida | Unknown | *Siphonodentalium galatheae* | 6900-7000 | Knudsen 1964 |
|  |  | Pulsellidae | *Unknown* | 6820-6850 | Belyaev 1989 |
| Gastropoda | Planilabiata | Cocculinidae | *Pseudococculina* sp. n. 4 | 6820-6850 | Belyaev 1989 |
| Bivalvia | Nuculida | Nuculanidae | *Nuculanidae gen* sp. n. | 6820-6850 | Belyaev 1989 |
|  | Lucinida | Thyasiridae | *Mendicula (A) aff. pygmaeus* | 6820-6850 | Belyaev 1989 |
|  |  |  | *Axinulus* sp. n. 1 | 6841-7060 | Belyaev 1989 |
|  | Pectinida | Pectinidae | *Delectopecten (r) vancouverensis* | 6820-6850 | Belyaev 1989 |
|  | Venerida | Vesicomyidae | *Vesicomya sundaensis* | 6820-7000 | Knudsen 1970 |
| Cephalopoda | Octopoda | Opisthoteuthidae | *Grimpoteuthis* sp. | 5760-6957 | Jamieson & Vecchione 2020 |
| Sipunculidea | Golfingiida | Phascolionidae | *Phascolion (montuga) lutense* | 6820-6850 | Belyaev 1989 |
| Gymnolaemata | Cheilostomatida | Bugulidae | *Kinetoskias*? | 6487 | Belyaev 1989 |
| Ostracoda | Podocopida | Krithidae | *Krithe setosa* | 6487 | Rudjakov 1961 |
| Malacostraca | Cumacea | Diastylidae | *Makrokylindrus hadalis* | 7160 | Belyaev 1989 |
|  |  | Lampropidae | *Lamprops* sp. n. | 6820-6850 | Belyaev 1989 |
|  | Tanaidacea | Leptognathiidae | *Akanthophoreus (L) longiremis* | 6433-6475 | Belyaev 1989 |
|  | Isopoda | Munnopsidae | *Eurycope* sp. 1 | 6820-6850 | Wolff 1956 |
|  |  |  | *Storthyngurella (S)* sp. n. 1 | 6820-6850 | Wolff 1956 |
|  |  |  | Unknown | 6439-6957 | This study |
|  |  | Haploniscidae | *Haploniscus* sp. n. 1 | 6935-7060 | Wolff 1956 |
|  |  | Macrostylidae | *Macrostylis porrecta* | 6433 | Mezhoz 1988 |
|  | Amphipoda | Eusiridae | *Rhachotropis flemmingi* | 6820-7160 | Dahl 1959 |
|  |  | Alicellidae | *Alicella gigantea* | 6957-7176 | This study |
|  |  | Scopelocheiridae | *Bathycallisoma (S) schellenbergi* | 6935-7060 | Dahl (1959) |
|  |  |  | *Bathycallisoma schellenbergi* | 6957-7176 | This study |
|  |  | Pardaliscidae | aff. *Princaxelia* | 5760-6957 | This study |
|  |  | Stegocephalidae | Stegocephalidaesp. | 6957-7176 | This study |
|  | Decapoda |  | *Cerataspis* cf. *monstrosus* | 5760-6739 | Swan et al. 2021 |
|  |  |  | Oplophoroidea spp. | 5760-6439 | Swan et al. 2021 |
|  | Mysida | Mysidae | *Amblyops* sp. | 5760-7176 | This study |
| Actinoptergii | Ateleopodiformes | Ateleopodidae | aff. *Ateleopus* | 6737 | Jamieson et al. 2021 |
|  | Ophidiiformes | Ophidiidae | *Bassozetus* sp. Inc. 1 | 5760-6146 | Jamieson et al. 2021 |
|  |  |  | *Bassozetus* sp.Inc. 2 | 5760-7176 | Jamieson et al. 2021 |
|  |  |  | *Bassozetus* sp.Inc. 5 | 5760 | Jamieson et al. 2021 |
|  |  |  | *Holcomycteronus profundissimus* | 5600-7160 | Roule 1913 |
|  |  |  | aff. *H. profundissimus* | 5760 | Jamieson et al. 2021 |
|  |  |  | aff. *Bathyonus pectoralis* | 6146-6737 | Jamieson et al. 2021 |
|  |  |  | aff. Neobythitinae | 5760 | Jamieson et al. 2021 |
|  | Perciformes | Liparidae | Liparid sp. *indet.* 1-JAV | 6439-7196 | This study/ Jamieson et al. 2021 |
| Appendicularia | Copelata | Fritillariidae | aff. *Fritillaria* | 5760-6957 | Jamieson & Linley 2021 |
|  |  | Oikopleurinae | aff. *Oikopleura* | 6439 | Jamieson & Linley 2021 |
|  |  | Unknown | Morphotype 2 | 6957 | Jamieson & Linley 2021 |
| Ascidacea | Stolidobranchia | Pyuridae | aff. *Culeolus* sp. | 6439 | This study |

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