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PG-3 **Discovery of the world's deepest populations of deep-sea zoanthids (Hexacorallia: Zoantharia: Abyssoanthidae) at the Japan Trench**

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Until recently, very little was known about zoanthids (Cnidaria: Hexacorallia) from deep-sea environments, with all known specimens assigned to the family Epizoanthidae. However, in June 2005 a small number of unusual samples of a zoanthid-like species were sampled during deep-sea submersible dives (Shinkai 6500 dive # 884) at a methane cold seep at 3259 m in the Nankai Trench off Muroto, Japan (32°34.945'N, 134°41.545'E). Specimens were highly divergent in ecology, morphology and molecular phylogeny from all known families of zoanthids, and were thus classified as the new species *Abyssoanthus nankaiensis* Reimer & Fujiwara 2007 belonging to the new family Abyssoanthidae. *A. nankaiensis* is distinguished by its unitary polyps, presence at methane cold seeps at extreme depths, and divergent phylogenetic status from other zoanthids. Unfortunately, due to difficulties the very small number of specimens, many questions remain on the ecology and morphology of *A. nankaiensis*.

From images taken during Shinkai 6500 dive # 959 it was hypothesized that there were other potential Abyssoanthidae populations at a non-methane seep site at the Japan Trench (39°06.50'N, 143°53.4'E). In October 2007, JAMSTEC cruise YK07-15 and the Shinkai 6500 dove to a depth of 5347-5360 m (dives # 1038, 1041) at this site to confirm the presence of zoanthids. Our initial findings show a large population of an unknown *Abyssoanthus* sp. living on mudstone in an "ecological hotspot" characterized by large amounts of marine snowfall. Specimen polyps *in situ* were approximately 15-25 mm in height, 5-15 mm in diameter, and had 20-30 tentacles. While phylogenetic studies are still being conducted on collected specimens to assess whether this is a new *Abyssoanthus* species or *A. nankaiensis*, from our initial results it is now clear that *Abyssoanthus* is not limited to methane cold seeps. This population of zoanthids represents the deepest recorded zoanthid population, and further investigations at other hadal sites will increase our knowledge of these understudied benthic cnidarians.