A quantum jump in acorn worm diversity: deep-sea technology meets molecular phylogenetics

Summary
Fifty years ago, deep-sea photographs revealed acorn worms (phylum Hemichordata) crawling on the deep ocean floor, but the crude state of undersea technology at that time did not permit collection of the actual animals. For the last five years, we have used modern submersibles to collect numerous specimens of so-called lophenteropneusts from the abyss all over the world ocean. By now, seven new species of these wide-collared enteropneusts have been formally described and more keep coming to hand. Molecular phylogenetic analysis surprisingly showed all these new found worms grouped into a single, deeply branching clade now recognized as the fourth family in the class Enteropneusta -- quite a jump in biodiversity. Ecologically these deep-sea worms differ strikingly from their burrow-inhabiting shallow water relatives; the deep-living worms crawl on the surface of the sea floor and rarely if ever burrow; instead they ascend into the water column and float along near the bottom to travel to new foraging sites. The evolution of the group is considered in the light of fossil evidence plus current zoogeographical and bathymetric data.

refs:
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