

Evolution of annelid diversity at whale-falls and other marine ephemeral habitats

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Akademisk avhandling för filosofie doktorsexamen i Biologi med inriktning mot systematik och biodiversitet, som kommer att offentligt försvaras fredagen den 25:e september 2009, klockan 10.00 i Föreläsningssalen, Zoologiska Institutionen, Medicinargatan 18, 413 90 Göteborg. Examinator: Per Sundberg. Opponent: Dr. Alex Rogers, Institute of Zoology, Zoological Society of London, Regent's Park, London, United Kingdom NW1 4RY.

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Dissertation abstract

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When whales die and sink to the sea-floor, they provide a sudden, enormous food supply to organisms in the vicinity. At first, larger mobile scavengers remove the flesh, but also when only the bones remain, the whale-fall can still sustain macrofauna communities for several years. Some organisms have adapted so well to this kind of food source that they would have problems living elsewhere, e.g. species within the polychaete genus *Osedax* which have developed a root system which can bore into the bones to reach nutrients. Other organisms are not so specialized on the bones, but rather on the sulphur-oxidizing filamentous bacterial mats covering the bones. Polychaetes from several families have been observed grazing the bacterial mats, and some of the species reported from whale-falls have also been found in other ephemeral, chemosynthetic habitats like e.g. hydrothermal vents, cold seeps and beneath fish farms, where filamentous mat-forming bacteria also occur. In this thesis, nine new species from two polychaete families are described from whale-falls and fish farms in Scandinavian waters, and from whale-falls and sunken wood off the Californian coast. Their phylogeny is investigated using molecular data. The genetic data are further used to separate morphologically cryptic species from ephemeral habitats in different ocean basins.

Keywords: Dorvilleidae, Chrysopetalidae, Siboglinidae, whale-fall, cryptic species