

## Taxonomy and diet of the *Ophryotrocha* (Annelida: Dorvilleidae) from whale-falls in the Tsukumo Bay, Japan

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Decomposition of large organic-falls, e. g. sunken whale carcasses is a part of nutrient cycle (Smith et al., 2015). The decomposition is performed by not only microbes but also some animals, e. g. the polychaetes. Some polychaetes can be found from inside of decaying bone, however, roles of the polychaetes animals are poorly understood. We examined the organic carbon isotope ratio and DNA(COI) of polychaete *Ophryotrocha* (Annelida: Dorvilleidae), a species lived in the whale bone deployed in the Tsukumo Bay. They are exposed to stress in the form of high levels of hydrogen sulfide but have successfully invaded into the bone. Morphological observation revealed the species is mainly characterized by shape of jaw and we considered as new species. Phylogenetic analyses based on COI suggest that they have independently invaded into whale falls, hydrothermal vent and methane seep from normal environment for each taxon group. The examined *Ophryotrocha* sp. had the broadest  $\delta^{13}\text{C}$  range (-33.8‰~-19.0‰) among other species lived on/in the bones. It indicates that some of them fed on bacterial mat such as *Beggiatoa* sp. (-37.2‰~-28.5‰) but some of them don't. These results highlight the role of *Ophryotrocha* has diverse food source, and it would be an advantage to adapt various "extreme environment" such as vent, seep, and whale falls.

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