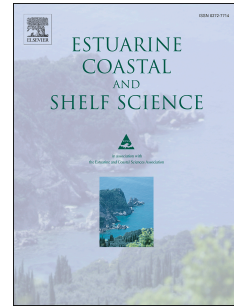


# Accepted Manuscript

Diversity of kelp holdfast-associated fauna in an Arctic fjord - Inconsistent responses to glacial mineral sedimentation across different taxa

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1 Diversity of kelp holdfast- associated fauna in an Arctic fjord - inconsistent  
2 responses to glacial mineral sedimentation across different taxa

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4 Macroalgal holdfast fauna in sediment-impacted fjord

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13 Conflicts of interest: none

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#### ABSTRACT

16 Kelp forests are complex underwater habitats that support diverse assemblages of  
17 animals ranging from sessile filter feeding invertebrates to fishes and marine mammals. In  
18 this study, the diversity of invertebrate fauna associated with kelp holdfasts was surveyed in a  
19 high Arctic glacial fjord (76 N, Hornsund, Svalbard). The effects of algal host identity (three  
20 kelp species: *Laminaria digitata*, *Saccharina latissima* and *Alaria esculenta*), depth (5 and  
21 10 m) and glacier-derived disturbance (three sites with varying levels of mineral  
22 sedimentation) on faunal species richness and composition were studied based on 239  
23 collected algal holdfasts. The species pool was mostly made up by three taxa: colonial  
24 Bryozoa and Hydrozoa, and Polychaeta. While the all-taxa species richness did not differ

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