



## **Phenology of *Lithothamnion glaciale* in mixed fjord conditions: mesocosm experiments provide insight to maerl physiology and distribution in southwestern Greenland.**

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Maerl are free living coralline algae that are often bedded in the subtidal forming important marine habitats in many regions of the world. Greenland is known to have at least three species of maerl along the coast and extending into some fjord systems. In the Godthåbsfjord region, *Lithothamnion glaciale* is never found dominating shallow maerl beds as it is further north (Disko bay) and in other regions of the Arctic. To investigate reasons for this maerl physiology was measured in situ over two field seasons and over the year in a mesocosm experiment which manipulated temperature and salinity to represent marine and fjord systems. The results of these measurements show that calcification and photosynthesis (DO production) in *L. glaciale* as well as another maerl species, *Clathromorphum compactum*, operate at very low rates and are influenced negatively by low salinity but positively by low temperature throughout the year. Photosynthesis and calcification are not often correlated in these species which is an unusual finding as these two metabolic processes are thought to be coupled. Findings provide natural history background for ecotypes from the Godthåbsfjord region and a baseline for future research in biogeochemistry and ecology.