



HOW DO TEMPERATURE-NUTRIENT INTERACTIONS SHAPE THE SENSITIVITY OF A BROWN SEAWEED TO GLOBAL WARMING?

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Background



Seaweed ecosystems worldwide are under increasing pressure from changing environmental conditions as a result of global climate change. To date, a large amount of studies have indicated the sensitivity of several seaweed species to warming and acidification. However, there is increasing evidence that seaweed responses to climate change interact with local variables, such as nutrient concentrations. The effect of these variables should therefore be studied simultaneously in order to make realistic predictions regarding the persistence of seaweeds under specific scenarios of climate change.

Scope of the thesis

The goal of the thesis is to arrive at an understanding of the effects of both temperature and nutrient concentration on the growth rate of the brown seaweed *Dictyota dichotoma*. To this end, the student will set up two laboratory experiments investigating the interactive effects of these two stressors by applying a regression design approach, exposing algae to a range of different levels of each stressor. The first experiment is aimed at examining temperature-phosphorus interactions, while the second experiment will focus on temperature-nitrate interactions. Both experiments will apply a fully factorial design, with 6 levels of nutrient concentrations and 6 levels of temperatures. These data will then be analysed statistically and incorporated in a model, which will provide a deeper understanding of how populations will cope with predicted changes in environmental conditions as a result of climate change.

