



Bachelor/Master/Internship in Benthic Ecology

The importance of genetic diversity and small-scale environmental variability in shaping key coastal ecosystems

The participant will join a larger-scale experiment run in summer 2020 at the Tjärnö Marine Laboratory, located on an island in the Kosterhavet marine national park, at the Swedish west coast 2 hours north of Gothenburg. Travel expenses and the stay in the guesthouse are fully funded.

The aim of the project is to provide an essential, and currently lacking, step towards understanding the importance of genetic diversity for the impacts of climate change on marine ecosystems. This project builds upon the findings of previous studies, which demonstrate that genetic diversity can improve productivity and resilience of single species, and investigates the role of primary-producer diversity on performance of the subsequent trophic level. Importantly, we will investigate the role of simulated natural climate fluctuations (Fig. 1), and their interaction with genetic diversity on ecosystem functioning.

Five clonal populations of *Zostera marina* will be collected from the closest available seagrass bed (Fig. 2). 15 different families of *Idotea balthica* are being bred in-house and will be available to the project. Experiments are carried out in the Tjärnö outdoor mesocosm tanks “Baltotron” during Summer 2020.

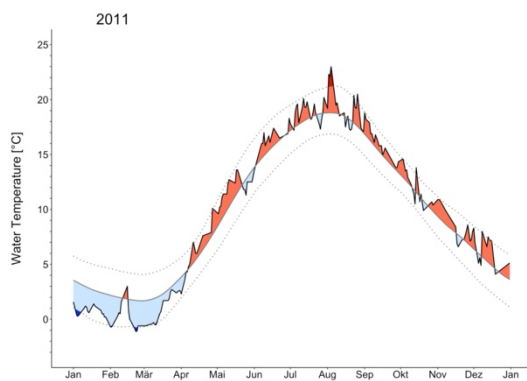


Figure 1: Tjärnö Archipelago temperature modelling indicating Marine Heatwaves (MHWs, dark red) and Marine Cold Spells (MCSs, dark blue) for the year 2011. The temperature dataset evaluated between 1981 and 2013 provides a baseline climatology (solid line) and 90th percentiles (dashed lines; Pansch et al. in prep.), as well as average intensity, duration, onset and offset rates of observed events.



Figure 2: Tjärnö Archipelago Seagrass bed, providing habitat to a diverse community, from invertebrates to commercially important fish species, as well as other ecosystem services such as oxygen production, wave attenuation, and buffering of the acidification of seawater (Picture by Tom Stavelly).

Time: July and August 2020

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You will be able to develop own ideas, be part of project planning as well as setting up and conducting the experiment!

