

Report for travel grant of MASTS Aquatic Stressors Forum – Kristina Beck

I have used the travel grant from the MASTS Aquatic Stressors Forum to partly fund my travel to attend the 10-days course “Experimental Design & Data Analysis for Marine Sciences” at the Tjärno Marine Laboratory of the University of Gothenburg (Sweden) in June 2024, which was organised by Prof Jon Havenhand and Prof Gerry Quinn. The course consisted of lectures in the mornings, covering a broad range of graphical and statistical analyses such as simple linear models, ANOVA and multiple regressions, model selection, mixed effects models and nested designs, repeated measures, multivariate analyses, generalised linear models, experimental design and sampling design. In the afternoons, we had practical/workshop sessions where we had the opportunity to run statistical analyses in R using datasets from the book “Experimental Design & Data Analysis for Biologists” (Quinn & Keough, 2024). During this time, we were also able to discuss the statistical analysis of our own data with the lecturers.

I have recently finished a long-term multiple driver aquarium experiment, where I investigated the combined effects of ocean acidification, warming, deoxygenation and reduced food availability on the physiology and skeletal dissolution of the cold-water coral *Lophelia pertusa* (syn. *Desmophyllum pertusum*). This is the first multiple driver experiment with a cold-water coral species that investigated the effect of changes in all four environmental factors that are predicted to change in the deep sea in the future due to climate change. The results of this experiment therefore provide valuable new information about the potential future of cold-water coral reefs, which are important ecosystems in the deep-sea and are associated with high levels of biodiversity. During the experiment, I have measured the growth and respiration rates as well as energetic reserves (protein, carbohydrate and lipid content) of the corals over one year. Participation in the data analysis course greatly helped me with the correct statistical analysis of the data from this complex multiple driver experiment, which I will present at the European Coral Reef Symposium in Naples (Italy) in July 2024 and which I am planning to publish soon. This course has greatly improved my data analysis skills and statistical knowledge in general, which will also help me with the data analysis of future experiments and projects.