



Trystan Sanders - Early Stage Researcher No.4

Calcification costs related to habitat

It is not really known how much energy it costs shellfish to build their shells and what implications this has on the rest of the animal and the ecosystem.

To build a shell, bivalves (mussels, oysters, scallops etc.) need to obtain carbonate from the seawater. Increased CO₂ emissions have led to more CO₂ dissolving in the oceans, making them more acidic and lowering the concentration of carbonate. This means it is more of a struggle for bivalves to get carbonate from the water to grow their shells and they have to invest more energy into this process. This in turn, leads to less energy being available for body growth and reproduction, which could have negative impacts on the animal.

These problems are also multiplied in the larval stage of the animals when they have the highest rate of shell growth. Mussels are regarded as 'keystone species' as they are extremely important for many ecosystems, so negative impacts on their growth and development will have negative effects on coastal ecosystems as a whole.

It is my job to investigate how much energy mussels invest in growing their shells in different environments and how this will affect ecosystems and shellfish farms in the future.

Optimizing locations of farms based on environmental conditions and larval production is vital for the future success of shellfish farms and ecosystems as a whole.

How to contact Trystan: tsanders@geomar.de

 [@TrystanSanders](https://twitter.com/TrystanSanders)