



Effect of ocean acidification on early development of the blue mussel

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Due to anthropogenic activity, atmospheric partial pressure of CO₂ (pCO₂) will continue to increase beyond the end of this century with predicted values ranging from 500 to 1000 ppm, depending on the considered scenario of the Intergovernmental Panel on Climate Change (IPCC). Because one third of anthropogenic CO₂ emissions has been stored in the oceans during the past few decades, ocean pH has already declined by 0.1 unit compared with pre-industrial values and is estimated to decrease by another 0.4 unit by the end of the century. Here, we report experimental data showing that the growth of planktonic mussel (*Mytilus edulis*) larvae is not heavily impacted by a decrease of pH as long as the water is oversaturated with regard to aragonite (e.g. representing with calcite the two main mineralogical forms of CaCO₃ in the ocean). These results on aragonite-forming planktonic heterotrophs show a much lower effect of increased atmospheric pCO₂ on calcification rates than previously observed for other organisms, mostly primary producers. This highlights the crucial need to perform experiments on planktonic heterotrophs and especially pteropods (holoplanktonic mollusc), which are the major aragonite producers in the open ocean, in order to evaluate the future evolution of aragonite production in the oceans and its subsequent feedback on climate change.