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TITLE: Impact of ocean acidification on a key Arctic pelagic mollusc (<i>Limacina helicina</i>)

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ABSTRACT:

Abstract. Thecosome pteropods (shelled pelagic molluscs) can play an important role in the food web of various ecosystems and play a key role in the cycling of carbon and carbonate. Since they harbor an aragonitic shell, they could be very sensitive to ocean acidification driven by the increase of anthropogenic CO2 emissions. The impact of changes in the carbonate chemistry was investigated on Limacina helicina, a key species of Arctic ecosystems. Pteropods were kept in culture under controlled pH conditions corresponding to pCO2 levels of 350 and 760 ?atm. Calcification was estimated using a fluorochrome and the radioisotope 45Ca. It exhibits a 28% decrease at the pH value expected for 2100 compared to the present pH value. This result supports the concern for the future of pteropods in a high-CO2 world, as well as of those species dependent upon them as a food resource. A decline of their populations would likely cause dramatic changes to the structure, function and services of polar ecosystems.

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