



## **Impacts of Ocean Acidification on Calcification – A Summary of Current Research From Laboratory and Field Observations**

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Rising atmospheric carbon dioxide (CO<sub>2</sub>), primarily from human fossil fuel combustion, dissolves in the ocean and changes the seawater carbonate chemistry. One well-known effect is the lowering of calcium carbonate saturation states. Field observations, monitoring, and modeling show that carbonate saturation state has decreased in the past decades and will continue to do so. This will impact shell-forming marine organisms including plankton, mollusks, echinoderms, and corals. Indeed laboratory experiments under high-CO<sub>2</sub> conditions and observations from areas with naturally occurring low pH conditions indicate that many calcifying species exhibit reduced calcification and growth rates. However, the degree of sensitivity varies among species. The changes in calcification rates could have implications to the overall structure and function of many marine ecosystems with consequences for the future and the millions of people that depend on the ocean for food and other resources for their livelihoods.