

**The impact of salinity on the
incorporation of Mg, Sr and Ba in the
aragonite shell of *Ruditapes
philippinarum***

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The influence of salinity on Mg/Ca, Sr/Ca and Ba/Ca ratios in the aragonitic shell of the Manila clam was investigated. Clams were reared at constant temperature (20°C) under different controlled salinities. Salinity for the first 35 days was held at 35, and then was changed to three different salinities (20, 28 and 35) for the next 29 days. Individual shell Mg/Ca, Sr/Ca and Ba/Ca ratios were studied through time. Despite stable conditions for clams reared at salinity 35 during the experiment, Mg/Ca shell ratios increased through time. The decrease in salinity resulted in both a decrease and increase in shell Mg/Ca suggesting Mg is under strong biological control. Sr/Ca shell ratios of clams reared at salinity 35 and under stable conditions were also not constant, and there was an inverse correlation between shell Sr/Ca and salinity despite the opposite in the water, suggesting Sr is also controlled biologically. An inverse correlation between salinity and Ba/Ca shell ratios (and a positive correlation between Ba/Ca shell and water) were observed ($r^2=0.93$). Despite inter-individual variability, Ba/Ca ratios in aragonite clam shells are a promising proxy of salinity in estuarine waters.