

Oxygen isotope composition in extant shark and ray bioapatite

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Since the discoveries of vertebrate bioapatite's ability to record oxygen isotope composition of ambient seawater have been made [1], oxygen isotopes have been widely used as a climatic and oceanographic proxy. The $\delta^{18}\text{O}_p$ aquatic vertebrate apatite is a function of the $\delta^{18}\text{O}_w$ value of the ambient water, yet "vital effects" on the $\delta^{18}\text{O}_p$ composition have been reported previously [2]. We have analyzed $\delta^{18}\text{O}_p$ composition in the teeth of six extant shark and ray species from the tropical ocean tank of the Blackpool Sea Life Center, UK. The teeth were naturally shedded and collected from the tank substrate.

Preparation of samples was performed in the Laboratory of Isotope Geology at the Natural History Museum of Stockholm (Sweden), and the $\delta^{18}\text{O}$ was measured at the NordSIM facility, using secondary ionization mass spectrometry (SIMS) by a high precision and high spatial-resolution CAMECA IMS 1280 ion microprobe.

Data treatment was followed by statistical analysis. Results show significant $\delta^{18}\text{O}$ differences at inter-tissue level, as well as the impact of chemical pre-treatment on the final $\delta^{18}\text{O}$ values. No significant inter-taxon variability was observed.

[1] Kolodny *et al.* (1983) *Earth and Planetary Science Letters* 64, 398-404. [2] Žigaitė & Whitehouse (2014) *GFF* 136, 337-340.