Abstract Book

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Table of Contents

Contribution of calcium isotope geochemistry to the study of diet in present and fossil elasmobranchs, case of Megalodon.

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Previously based on the analysis of stomach contents, the study of shark diet and trophic position has gained momentum with the development of isotope geochemistry tools in recent years. These tools open new perspectives for the study of present-day species but also fossil species whose behavior remains poorly known from an ecological point of view. Recent analyses have shown a correlation between the calcium isotopic composition ($\delta^{44}Ca$) of tooth enamel and the trophic position of the studied taxa. Here, we present a study based on changes in the calcium isotope composition of tooth enamel from three living shark species: the bluntnose sixgill shark (*Hexanchus griseus*), the mako shark (*Isurus oxyrinchus*) and the great white shark (*Carcharodon carcharias*) during various growth stages. The results obtained in these sharks, which can reach several meters in length, show isotopic variability reflecting the change in trophic level correlated with ontogeny and/or spatial distribution of populations of the same species as well, but also highlight changes in the exploitation of food resources and scavenging phases in certain taxa. This characterization of calcium isotopic variability within several present-day species with different diets open the way to a better understanding of the ecology of extinct species like the famous Meg, *O. (megaselachus) megalodon*. A preliminary analysis of its ancient trophic level through time revealed a more complex signal than expected for this giant predator of Cenozoic seas.

Corresponding Author Page Index