

## Visualizing the heterogeneity of trace metals incorporated into the vertebrae of esturine dependent elasmobranchs using LA-ICP-MS

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The analysis of trace metals incorporated into calcified structures of marine organisms using Laser Ablation Inductively Coupled Plasma Mass Spectrometry (LA-ICP-MS) is a powerful technique capable of addressing several ecological questions. The sequential accretion of hydroxyapatite within the vertebral centra of elasmobranchs (sharks, skates, and rays) produces a biogeochemical chronology of environmental conditions experienced by an individual and allows researchers to gain insight into movement patterns and population structure. To date, the analyses of trace metals within the centrum do not account for the 2D nature of mineral deposition and its potential effect on data interpretation. By running three parallel transects across the centra of different species and interpolating trace metal concentration between transects, we were able to construct 2D maps of elements commonly used to study the ecology of elasmobranchs (e.g., Sr, Ba, Pb, and Mn). In doing so, we were able to better visualize the distribution of trace metals, evaluate the importance of transect placement, and present new insight into the sources of trace metals incorporated into elasmobranch vertebrae.

