

**Taphonomic dynamics of lacustrine ostracodes on San Salvador Island,  
Bahamas: High fidelity and evidence of anthropogenic modification**

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**ABSTRACT**

It is critical that the taphonomic processes by which taxa enter the fossil record be well documented and understood. This study focuses on the precision and accuracy of the fossil record of Ostracoda on San Salvador Island, Bahamas. This fauna has already been used to reconstruct climate change and sea-level fluctuations on San Salvador, but its taphonomy was not clearly understood. We test the accuracy of the record by examining correlations between rank abundance and taxonomic composition of sixteen living communities and death assemblages in seven lakes on the island. Additionally, we test the precision of this record by comparing the taxonomic composition and species abundances of sixteen death assemblages from each of the same seven lakes. In six out of seven of these lakes, the accuracy by which death assemblages record the taxonomic composition and rank-abundance distributions of living communities is high. In these same six lakes, the within-lake precision of the record is also high since death assemblages recovered from individual lakes are more similar to assemblages from the same lake than to any other lake. In the remaining water body tested, the accuracy and precision of the record exhibited wide variation at individual sampling sites that are related to its past use as a water resource for a nearby plantation, a steep depth gradient, and tidal fluctuations. This study demonstrates the high fidelity of the ostracode fossil record, but highlights the importance of site-specific taphonomic studies to understand physical and biological processes that may obscure this record.