The Effects of Particulate-Laden Water on Skeletal Trauma

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Abstract:
Bone weathering has been well studied and documented regarding skeletonized remains in terrestrial environments. However, little work has been published on the process of abrasion to bones that are submerged in dynamic water. Skeletal material under water is subjected to a different set of stresses than bones left on a ground surface and research to fully document these postmortem changes is required. Increasing instances of maritime disasters, such as the sinking of the Italia

Database Creation

The numerical data collected from the initial measurements and final measurements after sampling was

Overall, there was a significant negative relationship between the initial width of each cut and the percent change in that width after experimental treatment (Figure 7). If the cuts were on the wider end of the width range, these cuts experienced less of a change in width after experimental treatment than did cuts that were on the thinner end of the width range. This could be due to particulate becoming trapped inside the cuts rather than scraping across the surface, which would decrease the

Behrensmeyer, A. K.
1978 Taphonomic and Ecologic Information from Bone Weathering. *Paleobiology* 4(2):150-162.

DeBattista, R., Thompson, T. J. U., Thompson, C. E. L., & Gowland, R. L.
2013 A comparison of surface features on submerged and non-submerged bone using scanning electron microscopy. *Journal of forensic and legal medicine*, *20*(6), 770-776.

Fernandez-Jalvo, Y. & Andrews, P.
2003 Experimental Effects of Water Abrasion on Bone Fragments. *Journal of Taphonomy*, *1*(3): 147-163.

Hockett, B. S.
1996 Corroded, Thinned and Polished Bones Created by Golden Eagles (*Aquila chrysaetos*): Taphonomic Implications for Archaeological Interpretations. *Journal of Archaeological Science*, *23*(4): 587-591.

Pokines, J. T. and S. A. Symes
2013 Marine Environmental Alterations to Bone. *Manual of forensic taphonomy* (pp. 144-172). Boca Raton: Taylor & Francis.