

MS Thesis Defense

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Defense date: April 7, 2015

Title: A Statistical Analysis Of Marine Mammal Dispersal Routes Across Major Ocean Regions Using Beta Diversity At The Generic Level

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ABSTRACT

Using the Paleobiology Database, the distribution of marine mammals was analyzed across geologic time in an effort to isolate dispersal routes. Measurements of beta diversity were used to quantify the overlap between different ocean basins at different points in time. A recently introduced measurement of overlap is analyzed and found to be highly correlated with traditional methods, although conditions causing a deviation from this correlation are presented. Overlap is used to test existing marine mammal dispersal hypotheses. The Strait of Gibraltar was found to play a significant role in the dispersal of cetaceans and sirenians. Conversely, the Central American Seaway was found to play only a minor role in the high overlap values between the Atlantic and Pacific oceans seen in extant taxa. Instead, it is asserted that this overlap is largely the result of Arctic dispersal pathways in the Quaternary.