Establishing the lifespan of the Pliocene bivalve, *Astarte concentrica*, using isotope sclerochronology

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The extant genus, *Astarte*, exhibits decreasing size through geologic time. It is an ideal candidate for studying changes in longevity through time because of its wide temporal and spatial distribution, ranging back to the Oligocene and today extending from the Arctic to the Caribbean. Our overall goal is to determine whether the observed change in size is accompanied with a change in longevity. To achieve this goal, we first established a methodology to identify annual increments in shell growth and estimate age using Pliocene shells from the Mid Atlantic Coastal Plain, USA. Annual growth increments were identified using sclerochronologic analysis and ontogenetic changes were evaluated using von Bertalanffy growth equations. Preliminary oxygen isotope analysis were used to evaluate seasonal growth patterns. Previous studies have shown that modern species of *Astarte* live for about 20 years. Future work will determine if growth rates and longevity are similar throughout the genus and whether changes in climate and/or water depth plays a role in shell growth and longevity.