

A LATE NEOGENE TREND IN A VENERID BIVALVE *CHIONE CANCELLATA*, FROM THE FLORIDA PENINSULA

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The objective of this project is to understand the long-term relationships, if any, if within-clade bivalve shell morphology to variations in shell growth rate and possible underlying environmental factors. As a preliminary approach to this problem, a study was undertaken to record the history of shell morphology, on the Florida peninsula, of the venerid bivalve *Chione cancellata* L. (Lower Pliocene - Recent). Samples were obtained from the following formations: Lower Pinecrest (3.5-3.0 mya), Caloosahatchee Fm. (2.5-1.8 mya), Upper Pinecrest Beds (2.4-1.8 mya), Bermont Fm. (1.6-1.1 mya), Anastasia Fm. (0.05 mya), and Recent. The total data set comprised ten samples.

Eleven morphometric measurements were selected on their predicted sensitivity to growth rate-caused variations in valve convexity. Comparisons of sample data sets were performed using principal components and canonical variates analyses. Only left-handed valves were analyzed. The results of both the principal component and canonical variates analyses indicate that a disproportionately large amount of the variance in the composite data set is accounted for by one morphometric dimension. This dimension is essentially a summary of contrast between anterior hinge morphology and posterior adductor muscle morphology. The samples form three major clusters; (1) Bermont Fm., Anastasia Fm. and Recent samples, (2) Caloosahatchee Fm. and U. Pinecrest samples, and (3) L. Pinecrest samples. There is some overlap of extremes between clusters (2) and (3), but otherwise the clusters are distinct. The result is a gradual but significant change of morphology during a 3.5 m.y. time span.

The next step in the project is to seek an explanation for the above observations. The provinciality of the phenomenon will be tested more extensively with the inclusion of Neogene and Recent samples from the Southern Caribbean and the Atlantic Coastal Plain. Also, considering the dynamism of Florida's oceanographic conditions (temperature, productivity and circulation) during the last 3.5 m.y., correlation of oceanographic conditions with *C. cancellata*'s growth rate and morphology will be examined. The proposed method is a systematic sampling of stable oxygen and carbon isotopes from valves within the samples analyzed.