

Choptank Fm. Paleoecology Study - GEOL 320 Lafayette College - D. Sunderlin

In addition to enjoying ourselves immensely at the Calvert Cliffs, we will be obtaining paleoecological and morphometric datasets that will be helpful in understanding the Neogene ecology and evolution of the scallop *Chesapecten nefrens*. Never before has the Miocene Choptank Fm. assemblage of *C. nefrens* experienced an assault of data gathering like that we will bring on it as a combined class effort. In this study we seek to address questions about the record of *Chesapecten nefrens* and the fossil assemblages in which it is found. What are some scientific questions that we may test? (**special note to instructors: I don't give students these below from the offset, I let the students develop them after introductory remarks and lecture*)

Diversity:

-Who is at the (Lower Choptank) Mataoaka fossil site generally? Who is preserved in the same bed as *C. nefrens*?

-Who is at the (Upper Choptank) Calvert Cliffs State Park fossil site generally? Who is preserved in the same bed as *C. nefrens*?

Morphology:

-Does the morphology of *C. nefrens* assemblage differ at the two study sites? How so?

Paleoecology:

-What is the drilling frequency (# of drills through), drill trials (# of failed holes), drill placement on *C. nefrens* at both study sites?

-Does size of *C. nefrens* correlate with drilling intensity?

-Does the diversity of the lower & upper Choptank Fm. correlate with drilling intensity on *C. nefrens*?

-How colonized are *C. nefrens* with *Balanus* at the study sites? Where on the shell?

Evaluation: Turn in the following items

1. Two index cards with two testable *hypotheses* & proposed *methods* for testing the hypotheses - team produced (**due at time of field trip departure)
2. *Field study report* - Background lit review, Statement of hypotheses, Methods, Results (text & graphics), How do data address hypotheses? - individual paper, group presentation (**due on Friday 5pm of following week)

Grading rubric:

Item	Excellent	Good	Fair	Poor
Hypotheses (team)	Well-constructed statement, calls for interesting investigation	Statement poorly worded but testable, calls for interesting investigation	Statement well worded but not testable OR statement calls for first glance study	Statement poorly worded and not testable
Proposed methods (team)	Well planned for stated hypotheses, includes clear data gathering plan & data analysis expectations	Well planned for stated hypotheses but lacks a data analysis expectations section	Not quite appropriate for the stated question/hypothesis	Not appropriate for stated hypothesis or incomplete
Written report (individual)	Well written, appropriate sources, figures useful and neat	All appropriate information but lacks flow, figures suboptimal, rare style errors	Many style errors, poor treatment of one major component, figures inappropriate	Many style errors, poor treatment of >1 major component
Oral report (team)	Complete, flows, "choreographed"	Complete, well-organized, but unrehearsed	Breaks in style, missing major component	Disorganized, typos, missing major elements

DATA GATHERING LANGUAGE/PROTOCOL:

