

### Questions for discussion 3

The answers to these questions may be found in the reading, but occasional outside references will be needed. These questions are due Tuesday, April 25, in class.

0. What is the minimum condition needed to preserve an organism as a **body fossil** (trace fossils are much less strict)? How is this condition usually achieved in nature?

1. Find a reference to the “Blue Lake Rhino”, possibly one of the most famous fossils found in Washington. What age is it? Of the kinds of **fossil preservation** listed in the Chapter 3 reading, what type of fossil preservation is it? *Describe* briefly the conditions under which the rhino was preserved for posterity. Hint: The National Park Service Lake Roosevelt NRA site is a good start (<http://www.nps.gov/laro/iceage.htm>).

2. Go to the Archea fossil record part of the University of California Museum of Paleontology site (<http://www.ucmp.berkeley.edu/archaea/archaeaf.html>). What three conditions does that site give to distinguish a **molecular fossil** (what our text calls a “chemical fossil”)?

3. In the discussion of **depositional environments** (“environments of deposition”, as the text quaintly puts it) on page 46, a coastal bay (like Willapa Bay on the Washington coast) is not simply a single depositional environment. Draw a **schematic map view** (aerial view) of a bay and divide it up into the different depositional environments and resulting sediment types that you would see there – in other words, draw a geologic map of a bay showing the sediment type in different areas, and name the different areas. Hint: “beach”, “sandbar”, “**nearshore marine**”, “rocky headland” are all good depositional environment names.

4. a. Is identifying the type of sedimentary rock in a given area sufficient to infer the depositional environment that that rock represents? NO. For instance, silt (which becomes siltstone in the rock record) is deposited at the bottom of lakes, as well as ocean bays. What further information that is available in the rock record would allow you to tell those two different depositional environments apart? How would that help?

b. What further information (again, available in the rock record) would you need to know to establish a **paleoecology**? Again, how would that help?