

Name: \_\_\_\_\_ Team: \_\_\_\_\_ Date: \_\_\_\_\_

### Geology 02/10 Mad River Slough

You have been hired as part of a team of sedimentologists to look at the subsurface stratigraphy in a region around Humboldt Bay. Your boss wants to learn about what has happened in the past so they can make plans for the future. The boss had a dream there is something interesting below the ground surface. Your team will conduct a sediment coring campaign to test the hypothesis that your boss can predict the future in their dreams. Your team will collect two cores and attempt to correlate the stratigraphy between the cores. You will use your descriptions of the sediment stratigraphy, along with the results of some tests, to correlate these layers.

You are given some core log sheets that have been standardized for your boss' company. The core logs are laid out to document the sediment stratigraphy. On the left draw a stratigraphic column with 40 cm vertical core per page. The drawing should be a sketch of what the sediment actually looks like (if there are roots, draw the roots). To the right of the drawing document the color, texture, and structure. Also take notes about the sediment if you have any interesting observations. The books that we usually use to look up colors are back ordered, so you will just need to do your best to estimate the color qualitatively (brown, brownish-gray, reddish-brown, etc). Texture is a description of the particle size (mud < 0.0625 mm, sand < 2 mm, pebbles < 64 mm) and can be qualified, eg. muddy sand or sandy mud. Structure describes the layering (laminated or massive). Notes can be used to include details that are not covered by the other descriptions.

The boss wants to know the time span that the sediment core represents. Your team will need to determine the best way to do this. You will "collect" any samples that need to be analyzed. These samples will be rushed off and results will be sent via email so this work can be completed and turned in 1 week from today. You may want to collect other samples also and there will be an expert sampler on site to make suggestions about this. You will want to make notes in your core log about the location of these samples. One of the things you will be able to do with the age results is to estimate sedimentation rates. Include these sedimentation rates in your report.

You will be provided with a field map. Use this map to document where your sediment cores are located.

Finally, write up a paragraph about your interpretation of the sediment stratigraphy found in your cores. Incorporate information provided by the analytical results from your samples (e.g. radiocarbon ages). Use a topic sentence and a summary sentence. Feel free to write two paragraphs if you think it is necessary. Each team member will need to turn in their own report that includes the core log and your written paragraph. Feel free to meet with each other during the week to work on this. Your boss will let you seek advice from a college instructor on Monday. Please turn this report in on the following Monday.