Study Questions from Ch4, Nichols, p.37-61

1. What are the possible media in which sediment is transported in natural systems?
2. What is the most *common* media in which sediment is transported in natural systems?
3. What are the 2 most common flow mechanisms? How are they different? What are the conditions in which each type might occur? Use the Reynolds Number concept in you answer.
4. What are the 3 modes of sediment particle transport? Use the combined Hjulstrom and settling velocity curve diagram (Fig 4.5 in Nichols) to explain the relationships among grain transport mode, forces acting to mobilize grains, and inertial forces acting to inhibit grain erosion and transport.
5. Distinguish fluid flow, bedforms, and internal sedimentary structures. How are they related?
6. Describe the “anatomy” of a flow transverse bedforms, such as a ripple.
7. Explain flaser laminations using the flow regime concept and the Hjulstrom diagram.
8. Be prepared to work, extensively, with the flow regime concept, in particular in terms of interpreting sedimentary successions.
9. Explain why larger than normal waves (with long wave length) are required to produce bedforms on the sea bed below normal wave base. What is the relationship between wave size/length and wave induced current velocity?
10. Compare and contrast sediment gravity flows and clear water flows with respect to sediment transport.
11. Compare and contrast the most distinctive textures and structures of low density sediment gravity flows deposits (turbidity current deposits, turbidites) and high density sediment gravity flow deposits (debris flow deposits, debrites).
12. Why do the deposits in a submarine fan, dominated by turbidity current deposits (turbidites) have a range of textures and bedding structures that differ substantially from the idealized Bouma Sequence?
13. What happens between the (short) time periods when turbidity currents form turbidites in a submarine fan?