

# Study Guide – Water Quality Test

## *Field Biology*

### Hints:

- Make sure you UNDERSTAND all the terms in this study guide
- Practice taking these questions and changing them to form possible quiz questions (three things to try: 1. change the “rules” of ecology, 2. change the data presented in the problem, or 3. start with the answer and work backwards)
- Read through the questions and discuss them before starting your answer
- Write everything down!
- Ask questions whenever possible!

1. How can water quality indices be used to compare different bodies of water? Why are they so useful for this purpose? What information do you lose by using a water quality index?
2. If someone tells you that the water quality of the Mary’s River is excellent, what does this mean? What kinds of questions might you ask this person?
3. In class, we’ve discussed how the quality of water can be compared to different things at different times or by different people. How can these different comparisons lead to confusion regarding the water quality of a particular body of water? Try to come up with some specific examples where the different definitions might lead to disagreement over the water quality of, for example, the Willamette River.
4. Make sure you can describe how to accurately set up, calibrate, and use the following water quality sensors: pH, Dissolved oxygen, turbidity
5. What are the following water quality parameters? What do they tell us about water? What are the values for these parameters that might be desirable for a) drinking water, b) trout, c) recreation (such as swimming)?
  - a. Temperature
  - b. Dissolved oxygen
  - c. Turbidity
  - d. pH
6. Using the technique we developed in class, create a water quality index that combines turbidity, pH, and temperature in a way that allows us to compare the suitability of a body of water for swimming (in other words, evaluates the quality of the water as to how likely it would be that people would want to swim in it). Think about the importance of each of these parameters for swimming water and scale your index accordingly. Then use your index to compare the water quality (for swimming) of the following streams/rivers:
  - Jackson Creek: Temperature = 12 C, pH = 6.8, turbidity = 7 NTU
  - Willamette River: Temperature = 19 C, pH = 5.6, turbidity = 45 NTU
  - Dixon Creek: Temperature = 14 C, pH = 7.1, turbidity = 34 NTU
  - Jackson-Frazier Wetlands: Temperature = 24 C, pH = 6.7, turbidity = 15 NTU