**Analysis of Environmental Data – Reading questions 10**

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**Q1 (1 pt.):** Why would we want a model selection criterion to penalize the number of parameters in a model?

We lose one degree of freedom for each parameter we estimate to get the best guess for the overall model standard deviation.

**Q2 (3 pts.):** In 2 - 3 short paragraphs, describe the meaning of the slope parameter β1 in the context of the relationship between the predictor variable, x, and the response variable y.

For each 1-unit change in the predictor variable x, we expect a β1 change in the value of the response variable y. The slope parameter β1 tells us how steep the line of best fit is. If we have a plant growth of 2.4cm (β1) every day (x variable), we would have to add 2.4cm every day. So, we would have a plant height of 4.8cm at day 2 and so on…

**Q3 (1 pt.):** Based on the model table, what is the *base case* water treatment?

The low water treatment (intercept) is the base case.

**Q4 (2 pts.):** What is the average plant mass, in grams, for the **low** water treatment?

How did you calculate this quantity?

The average plant mass for the low water treatment is 2.4g.

It is the estimate value for the intercept.

**Q5 (2 pts.):** What is the average plant mass, in grams, for the **medium** water treatment?

How did you calculate this quantity?

The average plant mass for the medium water treatment is 3.7g.

You simply add the estimate value of waterMed to the bas case value, so: 2.4+1.3.

**Q6 (1 pt.):** Which of the following questions cannot be addressed with the model coefficient table? Select the correct answer or answers:

B: Is water availability a significant predictor for plant biomass accumulation?