Assignment 4 - QMEE

1: "Guarder male digestive tract mass also did not significantly change across the season (R^2 = 0·004, n = 72, 95% C.I. = −0·004 to 0·007, P > 0·05). Also, no seasonal decline in body condition was observed."

While the first sentence was supported by statistical information (confidence intervals and p-values), the second sentence lacked the same level of detail. At the end of this sentence, there should have been some information about what tests were done and what the p-values and/or confidence intervals were. Despite both sentences reporting non-significant data, the second sentence did not report the statistical support behind its findings. Statistical tests and results should always be reported, especially if they are stated in the results section of a paper. I would change this sentence to say:

"Also, no seasonal decline in body condition was observed **(including statistical tests and results in brackets**)."

2: There was no effect of Julian date on the body condition of guarder males (R^2 = 0·010, n = 73, 95% C.I. = −0·0004 to 0·0010, P > 0·05) or on their I_H (R^2 = 0·016, n = 73, 95% C.I. = −0·0009 to 0·0030, P > 0·05).

This sentence suggests that Julian dates did not affect body condition or the hepato-somatic index (index for body condition) based on a high p-value. However, high p-values should not be used as evidence that there was absolutely no effect. Instead, the sentence should say that an unclear relationship was identified between Julian dates and body condition measurements. I have rewritten the sentence as follows:

"There was a **statistically unclear** effect of Julian date on the body condition of guarder males (R^2 = 0·010, n = 73, 95% C.I. = −0·0004 to 0·0010, P > 0·05) and their I_H (R^2 = 0·016, n = 73, 95% C.I. = −0·0009 to 0·0030, P > 0·05)."

3: "There was no difference between females and sneaker males in terms of food abundance in the digestive tract (post hoc Wilcoxon: Z = 0·05, P > 0·05)."

In this sentence, the author states that there was no difference between two variables based on a non-significant p-value. However, we learned in lecture that a high p-value does not necessarily mean there was no effect; it could also mean that there was an unclear or extremely small and undetectable effect. I would change this sentence to instead say:

"There was no **clear** difference between females and sneaker males in terms of food abundance in the digestive tract (*post hoc* Wilcoxon: Z = 0·05, P > 0·05)."

Reference

Cogliati, K. M., Danukarjanto, C., Pereira, A. C., Lau, M. J., Hassan, A., Mistakidis, A. F., Bolker, B. M., Neff, B. D., & Balshine, S. (2015b). Diet and cannibalism in plainfin midshipman *Porichthys notatus*. *Journal of Fish Biology*, *86*(4), 1396–415. https://doi.org/10.1111/jfb.12649