**Line-by-line comments on PeerJ 71271 V2**

## Abstract

Line 46: Suggest deleting “the” before community structure

## Introduction

Line 57: Suggest splitting up this sentence on this line after the references and starting the next sentence with “In particular, gorgonians typically have an arborescent shape that forms…”

Line 64: Suggest adding “collectively” before “the coral holobiont” in parentheses

Line 64: “as it does” at the end of the line should be “as they do”

Line 68: “gorgonanceans” (hopefully switched to gorgonains”) should be singular – drop the “s” at the end

Line 79: Suggest changing “may” to “often”

Lines 76-83: This is all one sentence – I suggest breaking it up into 2-3 to make your text easier to follow.

Line 96: This sentence at the end feels thrown in, and it’s not clear how it is connected to the previous ideas. To help transition to the next paragraph, I suggest changing “In addition” to “However,” and adding “also” after “has” on line 97.

Line 107: Suggest deleting “the” before “tolerance”

Line 118: Suggest deleting “should”

Line 124: Suggest deleting “the” before “Symbiodiniaceae”

Line 128: Suggest deleting "comparable” from before “DOC”; what are these treatments comparable too? Your study? You haven’t introduced what you did yet so the reader can’t follow

Line 132: Suggest deleting “While” and adding “also” after “enrichment” on line 133.

Line 133: Adding the ecophysiological parameters assessed by this study in parenthesis after “ecophysiology” would help the reader follow what is different from the results described in the previous sentence.

Lines 135-137: Suggest deleting “increased water temperatures were found to negatively affect the physiology of” and “which” after *X. umbellata*. This sentence seems to contradict itself otherwise (negative affect on

physiology yet considerable resistance to elevated temperatures?). Deleting this section preserves and clarifies the meaning.

Line 146: This is the first instance where *P. flava* is mentioned in the main body of the text; please spell out the genus.

Line 138: a word is missing here – individual DOC enrichment? Concentrations?

Line 151: gorgonacean (hopefully changed to gorgonian) should be possessive (i.e. gorgonian's)

Line 155: suggest deleting "individual" before "DOC"

Line 158: suggest adding "coral" before "growth" and deleting "coral fragments" from the parentheses

**Methods**

Line 192: Suggest deleting "previously" (since you already said it was one month prior)

Line 203: Suggest starting a new paragraph with "A parallel study…"

Line 227-228: Suggest change to "*P. flava* fragments to be associated with a Symbiodiniaceae species within this genus"

Lines 229-230: Suggest change to "We therefore did not expect the specific species of Symbiodiniaceae to play a significant role in the interpretation of our results."

Line 236: Suggest deleting "Besides"

Line 236: What about flow rate? This seems different in the maintenance tank compared to the experimental tanks in table S1.1 and is not included in the statistical analysis presented in table S2.1, I suspect since this may have only been measure once (there are no SD presented for flow rate). I appreciate that the authors added a section to the discussion addressing flow in their experiment. I would encourage them to also add a statement here about the discrepancy in flow rate between the experimental and parental colony tanks.

Line 245: Suggest referring to this tank consistently as "parental colonies tank" (lines 193) and or "maintenance tank" (as it is referred to the supplemental tables).

Lines 271-274: Here I think the authors mean to say that the O2 flux of the control chamber was subtracted from the flux of the experimental chambers (rather than concentration). In other words, the O2 flux of microbes was determined using a chamber filled with seawater and this was subtracted from that of the corals. I suggest changing concentration to flux.

Line 274: Rather than saying “related” I suggest saying O2 flux was further standardized by water volume, or similar, to improve clarity

Line 293: Suggest adding “(n = 3)” here to remind the reader

Line 315: “an” is needed before outlier and outlier should not be capitalized

Line 316: Model should not be capitalized

Line 331: What is “aquaria tank information”? The identity of the tank? Specific parameters? Please clarify. Same comment for “donor colony information” on line 334 (I assume you just mean which donor colony the frag came from i.e. donor colony identity)

Line 340-341: Please adopt a consistent name for this tank (“parental colonies tank”, “mother colonies tank”, “maintenance tank”, and here “tank that initially held the experimental colonies”)

**Results**

Line 346: Do you have a p-value to report here?

Lines 374-377: The results are bit muddled here. The authors seem to be saying that within the low DOC treatment, there was a significant difference between the 32 and 30 deg treatments. I am not sure what the authors mean by “compared to the temperature control at 26 deg C”. Do they mean that the low DOC at 32 and 30 deg C were significantly different from all the temperature controls (across all DOC concentrations)? The bars and asterisks in the figure are also not clear to me. Please clarify the results here.

Lines 377-380: The authors appear to be discussing results that are not supported by statistical tests here. Is the surface area of corals significantly lower at 32 deg C than the other temperatures in any treatment? If not, please delete this section.

**Discussion**

Line 392: Any speculation on why or how soft corals seem to be more tolerant to DOC than hard corals? One or two sentences would be a nice addition here, especially since DOC is understudied.

Line 420: Suggest change to “This suggests a given potential…”

Line 457: It would be clearer if you include some examples of holobiont-related parameters aside from heterotrophy (or just say heterotrophy if that’s what you’re referring to).

Line 472-486: Suggest referring to “DOC” as “DOC concentration” throughout this section

Line 474-475: Can you remind the readers what the effect on growth was? Any interpretation of that result?

Line 478-480: This sentence is a little unclear. Are you saying that soft corals respond differently than hard corals to all three stress scenarios: DOC enrichment, warming, and both? Or that the response of soft corals is different to each of the three scenarios? Consider clarifying.

Line 483: Again, my understanding from the manuscript is that there were no significant changes in growth within the medium and high DOC treatments across temperatures, so please do not refer to a negative effect on growth.

**Conclusion**

Line 492: Suggest replacing “contents” with “concentrations”

**Figures and Tables**

Consider adding p-values or cutoffs to figure legends (i.e. what do two vs three asterisks indicate?)

Figure 2: Suggest adding “DOC” after the concentration listed for the temperature control. I also suggest making the temperature labels a bit darker; they are hard to see.

Figure 4: What do the four bars above the controlT represent? The four different DOC concentrations? This should be indicated/labeled, especially since there seems to be a significant result here. I also suggest deleting “this effect was negative for most DOC concentrations at increased temperatures” since none of the differences across temps within a DOC treatment were significant.

Table 2: Add a space in P.flava

**Supplemental Materials**

Please add a summary of how and when flow was measured.

S.3: there is a typo in Tukey test