

Reviewer Response: Thank you to the authors for taking the time to address my prior comments. The revised manuscript is much improved and I appreciate the authors' efforts to better constrain the study to focus on NEP rather than community scale processes in the absence of paired NEC measurements. However, I still think the Discussion would benefit from a stronger and more nuanced interpretation of the low but generally negative NEP rates. Because NEP is an ecosystem-level metric, the measured values cannot by themselves distinguish whether the observed patterns were primarily driven by suppressed productivity, enhanced respiration, or a combination of reduced productivity and respiration. I therefore encourage the authors to discuss these alternatives rather than solely interpreting the findings as net respiration at marginal reef ecosystems. This is particularly important since the near-zero mean NEP could indicate a general reduction of both organic carbon cycling processes.

To reiterate, I think this study is already improved since the first review. I recommend that minor revisions are needed to address my comment above as well as the specific comments provided below.

Specific Comments

(Lines 42-44): Please clarify the basis for the phrases “up to 31°C” and “down to 14°C”. Do these values represent historical extremes, seasonal means, average maxima/minima, or values from a specific monitoring period? Because the only citation currently supporting this statement is Morton (1989), a more recent reference or quantitative context would strengthen this description.

(Lines 53-64): The reference formatting and use of brackets in this section are inconsistent and should be revised.

(Lines 63-64): This should be rephrased because NEP represents the net balance between photosynthesis and respiration. Photosynthesis increases DO and respiration decreases DO, but NEP itself reflects the combined net effect of both processes.

(Figure 1): Please revise the Figure 1 caption so that the site colors match the symbols on the map. Sharp Island appears red on the maps but is described as green in the figure caption.

(Lines 116-118): Given that the deployment sites differed substantially in coral cover, the phrase “coral cover as uniformly high as possible” is confusing. Consider rephrasing this to indicate that instruments were placed within the locally representative and uniform coral cover for each site.

(Line 152 and elsewhere): Please carefully proofread the manuscript for unit formatting and typographical consistence. For example, revise “m/s” to “m s⁻¹” to match the unit formatting of the manuscript, and apply the same formatting at Line 203 and elsewhere. Also, check spacing

around “±”, missing closing parentheses (e.g., Lines 299-303), and inconsistent significant figures (e.g., Lines 324-332).

(Lines 333-338): Consider adding the key statistical values directly in the text here (as done in the previous paragraph). This is especially helpful to the reader since the table being referred to is a supplementary material table rather than a manuscript table.

(Lines 373-374 and Lines 387-388): When first introducing the direction of NEP in the Results, please define -NEP as “net respiration” in the same way you did earlier in the sentence for +NEP being “net production”. Once defined, the later subsection does not need to repeat “(-NEP)” unless necessary for clarity.

(Lines 470-471): If this statement refers only to the present study, then please soften the causal wording. The data support the interpretation that low-light conditions may constrain or offset the potential positive effects of nutrient inputs on NEP, but they do not definitively show that light limitation “stunts” those effects.

(Lines 484-488): Presenting the values of light availability in two different units is confusing in this section. Please either use one unit consistently or briefly clarify why both are provided and if including both is needed for a broad interpretation.

(Lines 504-505): Please soften the wording here. Phrases such as “more pronounced” and “double” may be misleading if the overall means and associated variability indicate that wet and dry season NEP rates were not considerably different. Consider focusing this description as a numerical trend or greater variability rather than a strong seasonal difference.

(Lines 583-594 and Lines 630-631): Refer to my general comment above for suggestions on improving the scope of alternate interpretations for the findings of this study.

(Lines 611-612): Please proof-read this sentence as it appears to contain a typo of “looking aiming to measure”.