Dear Editor,

Please find attached our manuscript entitled “**Calcification, respiration, and photosynthesis rates of six prominent coral taxa**” for consideration in Marine Ecology Progress Series as a Research Article.

Quantifying the physiological performance of species is essential to understand their role in the functioning of ecosystems. Due to their high diversity of species and complexity, coral reefs lag behind other marine ecosystems (e.g., kelp forest, seagrass) in our capacity to estimate community processes and fluxes. Our paper provides ontogenetic scaling of three physiological rates — calcification, respiration, and photosynthesis — for six prominent, reef-building coral taxa in Mo’orea (French Polynesia). Our results indicate that across all taxa, area-specific calcification rates are higher for smaller colonies, which confers to juveniles an essential role in the production of calcium carbonate by coral reefs. However, photosynthesis and respiration rates remain constant over the colony-size gradient. We also found that different species allocate different amount of energy to the three processes. Some species tend to invest almost all the energy acquired through photosynthesis in the production of calcium carbonate, while others keep some of the energy for other processes such as reproduction. We hypothesize that this species-specific use of energy can explain the recovery success after a major disturbance event occurred in Mo’orea in 2010. More specifically, we suggest that the ratio between net primary production and calcification may explain the demographic dynamics and the resilience of the examined coral species. We believe that this makes our paper ideally suited for publication in Marine Ecology Progress Series.

We state that 1) this manuscript is not submitted elsewhere and is original, 2) all authors agreed to be listed and approved the submitted version of the manuscript. To sum-up authors contribution: J.C, H.R, D.B and V.P conceived the idea and methods. J.C, A.M, B.E and U.C performed the incubation experiments. J.C. performed the photogrammetry. J.C. built metabolic models and D.B improved the R script. J.C wrote the first draft of the paper, and all co-authors contributed to revisions and approved the final draft.

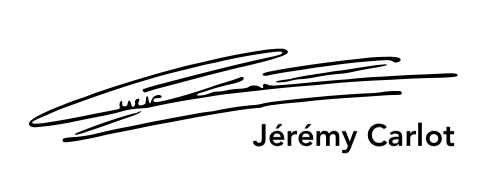
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With best regards,   
**Jeremy Carlot, on behalf of the authors**