



EGUsphere, referee comment RC1  
<https://doi.org/10.5194/egusphere-2022-907-RC1>, 2022  
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## **Comment on egusphere-2022-907**

Anonymous Referee #1

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Referee comment on "Unifying biological field observations to detect and compare ocean acidification impacts across marine species and ecosystems: what to monitor and why" by Steve Widdicombe et al., EGU Sphere, <https://doi.org/10.5194/egusphere-2022-907-RC1>, 2022

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-General comments:

This is an interesting manuscript proposing five broad classes of biological indicators that, when coupled with environmental observations, would allow the rate and severity of biological change in response to OA to be observed and compared. In addition, its approach allows the inclusion of a wide diversity of marine ecosystems in regional and global assessments.

The paper is well written, clear and concise. The manuscript is well documented although I miss some references in several sections (see individual comments below).

Therefore, I recommend this article for publication after minor revisions.

-Individual comments:

Line 92: "secondly"

Lines 119-122: provide references

Line 135: Remove "Observing" from the subtitle

Line 136: Figuerola et al., 2021?

Line 159: replace "Hofmann et al.; 2008" with "Hofmann et al. 2008;"

Line 164: Replace "Relative prevalence and success of calcifying organisms within an ecosystem" with "Biomass, abundance and percent cover"

Line 169: Replace "Calcified Biostructure Morphology" with "Skeletal morphology and composition"

Line 172: Add "porosity"

Line 198: Replace "Biomass/Standing Stock" with "Biomass and abundance"

Lines 202, 206, 210: provide references

Line 225: Replace "Biomass/Standing Stock" with "Biomass, abundance and percent cover"

Line 252: Add the following references: Kroeker et al., 2010, 2013; Hancock et al., 2020; Figuerola et al., 2021

Line 253: Add the following references after "...species loss": Hall-Spencer et al., 2008; Enochs et al., 2015

#### References:

Hall-Spencer, J. M. et al. Volcanic carbon dioxide vents show ecosystem effects of ocean acidification. *Nature* 454, 96–99 (2008).

Enochs, I. C. et al. Shift from coral to macroalgae dominance on a volcanically acidified reef. *Nat. Clim. Chang.* 5, 1–9 (2015).

Line 253: add the following references after "...trophic interactions": Kroeker et al., 2013b; Vizzini et al., 2017

References:

Kroeker, K. J., Gambi, M. C. & Micheli, F. Community dynamics and ecosystem simplification in a high-CO<sub>2</sub> ocean. *Proc. Natl. Acad. Sci. USA* 110, 12721–12726 (2013b).

Vizzini, S. et al. Ocean acidification as a driver of community simplification via the collapse of higher-order and rise of lower-order consumers. *Sci. Rep.* 7, 1–10 (2017).

Line 256: references are not in chronological order along the text.

Lines 420 and 782: *M. edulis* in italics

Figure 1: Put the traits in the same order than mentioned in the text: first calcified organisms, second autotrophs...

Figure caption: Replace " Five fundamental ecosystem traits and their observable indicators." with "Five fundamental ecosystem traits identified as potentially sensitive to ocean acidification and their observable indicators."