



# Corrigendum: Overstated Potential for Seagrass Meadows to Mitigate Coastal Ocean Acidification

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## A Corrigendum on

### Overstated Potential for Seagrass Meadows to Mitigate Coastal Ocean Acidification

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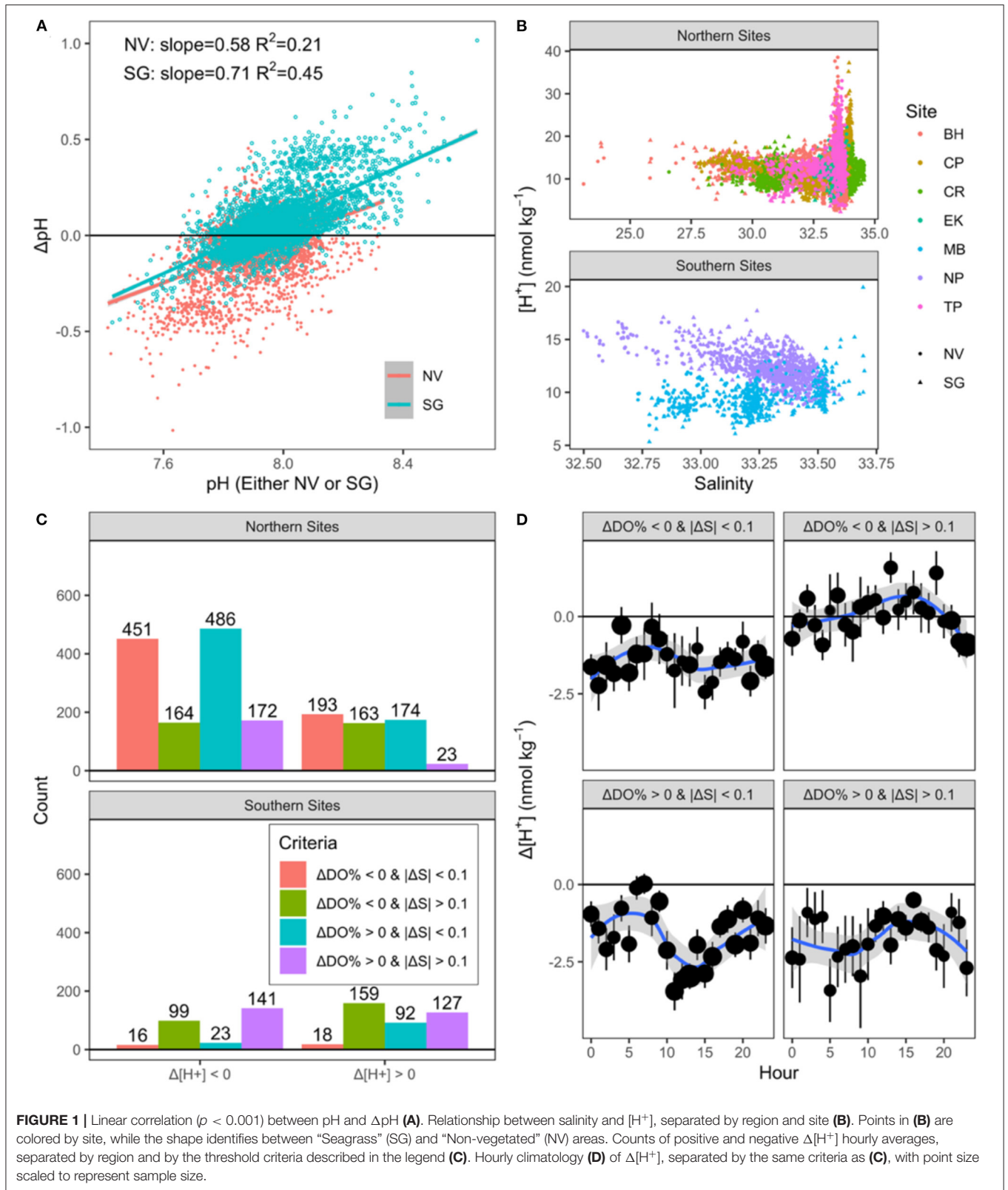
In the original article, there was a mistake in **Figure 1C** and **Figure 1D** as published. This was the result of an error in our code involving our treatment of missing dissolved oxygen (DO) measurements. We thank Dr. Ricart for finding this mistake, and deeply regret that it made it into the published manuscript. The corrected **Figure 1** is shown below, where 1A and 1B remain unchanged.

As a result, the text also contained a few mistaken statements, related to our verbal description of **Figures 1C,D**. Following the removal of the ~1,000 erroneous  $\Delta\text{DO} < 0$  records, it is still the case that ~67% (1,043/1,552) of the observed  $\Delta\text{H}^+ < 0$  events are still associated with conditions inconsistent with seagrass primary productivity. This is because they coincide with DO or Salinity deviations that are consistent with mixing effects, anaerobic inputs, or other pelagic processes. There were a few textual mistakes in paragraph 5, where we accidentally switched “positive” and “negative” and referenced the wrong bar in **Figure 1C**.

Our corrections to the text are as follows:

Paragraph 4:

“Consistent with R21, we find that hourly average  $\Delta[\text{H}^+]$  was indeed negative (i.e., positive  $\Delta\text{pH}$ ) marginally more often than chance alone would dictate, at ~62% of the time across all sites (1,552 out of 2,501 hourly averages: **Figure 1C**). Approximately 38% of these potential “OA amelioration” events (negative  $\Delta[\text{H}^+]$ ) coincided with both positive  $\Delta\text{DO}\%$  and  $|\Delta\text{S}| < 0.1$  in the northern sites (left blue bars, top), suggesting seagrass ecosystem metabolism as a plausible cause. This fraction was only 8% in the southern sites (left blue bars, bottom). Across all sites, another ~20% of these negative  $\Delta[\text{H}^+]$  cases occurred when  $\Delta\text{DO}\%$  was positive but  $\Delta\text{S}$  suggested a mixing effect on pH (left purple bars). To summarize, approximately two thirds (67%) of these  $\Delta[\text{H}^+] < 0$  excursions across all sites occurred when  $\Delta\text{DO}\%$  was negative or when  $|\Delta\text{S}| > 0.1$  (left purple, red and green bars in **Figure 1C**), supporting our claim that local pH increases were most often caused by factors other than seagrass photosynthetic CO<sub>2</sub> uptake.”



**FIGURE 1** | Linear correlation ( $p < 0.001$ ) between pH and  $\Delta\text{pH}$  (A). Relationship between salinity and  $[\text{H}^+]$ , separated by region and site (B). Points in (B) are colored by site, while the shape identifies between “Seagrass” (SG) and “Non-vegetated” (NV) areas. Counts of positive and negative  $\Delta[\text{H}^+]$  hourly averages, separated by region and by the threshold criteria described in the legend (C). Hourly climatology (D) of  $\Delta[\text{H}^+]$ , separated by the same criteria as (C), with point size scaled to represent sample size.

Paragraph 5:

“...Still, this leaves only 509, or ~20%, of all measurements as potentially related to a seagrass photosynthesis effect (Figure 1C,

left teal bars), far below the 65% claimed in R21. This is partially balanced by the count of positive  $\Delta[\text{H}^+]$  measurements where  $\Delta\text{DO}\%$  is also below our threshold ( $n=211$ , right red bars). That

daytime pH increases are roughly balanced by low nighttime pH is in line with recent findings that seagrass net metabolism is typically close to zero, when assessed over a full diel cycle (Perez et al., 2018; Asmala et al., 2019; Van Dam et al., 2019; Akhand et al., 2020; Berger et al., 2020).”

Paragraph 6:

“...Secondly, apparent daytime proton consumption ( $-\Delta[\text{H}^+]$ ) did often coincide with  $+\Delta\text{DO}$  and  $|\Delta\text{S}| < 0.1$ , consistent with seagrass ecosystem photosynthesis (Figure 1D;

bottom left panel). However,  $-\Delta[\text{H}^+]$  also frequently coincided with other scenarios (Figure 1D; top left and bottom right panels), suggesting that  $-\Delta[\text{H}^+]$  was a general feature of the dataset regardless of daytime seagrass productivity, as argued by R21.”

The authors apologize for this error and state that this does not change the scientific conclusions of the article in any way. The original article has been updated.

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