

We thank the editor and reviewers for their positive assessment of the revised manuscript and for the constructive minor comments raised by one of the reviewers. Below we provide a point-by-point response to each comment, with corresponding changes made in the revised manuscript.

Line 141: Are 8 m and 18 m in the different depths of same location? The figure looks like they are in different water column.

To clarify Fig.1, 8 m and 18 m refer to two sampling depths at each of the two reef sites (West and East), not four separate locations. We have revised the figure to make this explicit by: (1) adding depth labels ("8 m" and "18 m") at both the West and East sites, rather than only next to West as in the original version, and (2) bolding the "West" and "East" site labels to visually group each site with its two associated depths. We have also updated the figure caption to state explicitly that sediment traps were deployed "at the western and eastern reef sites, each sampled at two water depths (8 m and 18 m).

Line 242, geometric mean: It appears that the n th root symbol is mistakenly replaced by a square root symbol. Pl check.

The equation has been corrected: the geometric mean of n elemental counts requires the n th root of their product, not a fixed square root. The equation now reads:

$$g(z) = (\text{Counts_ElementA}(z) \times \text{Counts_ElementB}(z) \times \dots \times \text{Counts_Elementn}(z))^{(1/n)}$$

This has been updated in the revised manuscript (Line 242).

Line 463: Why use different colours for wet and dry seasons?

The orange and blue color scales are used consistently throughout the manuscript to visually distinguish dry season (orange) and wet season (blue) data, respectively. This convention is applied to most figures to help readers quickly identify seasonal patterns. We have clarified this in the Figure 7 caption, which now explicitly states 'dry season in orange' and 'wet season in blue.

Line 490: In contrast to what?

We have rephrased this sentence to: This reef is exposed to a persistent west-southward current and higher wave and current energy (Fig. 2), reducing residence times of suspended particles at this site.

Line 528: Is 30 degrees fall within 29-32? And seawater temperature should compare with typical range of seawater instead of air.

This sentence has been corrected. Seawater temperatures during October–November are now compared to the typical Curaçao seawater temperature range (26–29°C, with shallow reef waters maintaining annual mean temperatures of 27.6–27.9°C; Bolden et al., 2026), rather than the air temperature range.

Line 618, Fig8: The fonts look different for each element on X- and Y-axis. In this fig, depth is a major factor. But line 264 states that "as there were no clear differences between the different depths when examining the RDA results". It is assumed that depth refers to bottom depth. The RDA model uses Depth and Distance to explain spatial variation across only three discrete locations. Since these spatial predictors are constant for each site (N=3), the high explanatory power of RDA1 (48.57%) is likely overestimated due to limited spatial degrees of freedom.

We have corrected the figure so that all text elements (title, axis titles, tick labels, vector labels, legend, and annotations) now use a consistent font.

Regarding collinearity, we calculated variance inflation factors (VIFs) for all explanatory variables in the RDA. All VIFs were low (range: 1.30–2.79), well below the commonly used threshold of 5, confirming no problematic collinearity among the constraining variables. This has been added to the Methods.

We also clarify in the Methods that the combining of depths (East 8 m/18 m and West 8 m/18 m) applies specifically to univariate comparisons of fluxes, grain size, and elemental composition, where no consistent depth-related differences were found, and is independent of the RDA, in which Depth is retained as a continuous spatial predictor. We have added a sentence to the Discussion noting that Depth's contribution to the RDA likely reflects broader spatial positioning within the bay (mouth vs. reef) rather than a strong within-reef depth gradient, consistent with the lack of depth differences reported elsewhere in the manuscript.

Line 719: From where does the 'benthic cover' data come? Please add the ref.

We added the reference where the benthic data was retrieved from (De Bakker et al., 2017).

Line 741 "strengthening west-to-east correlations". How is this seen? Please add ref to fig/table.

We have rephrased this sentence and add a reference to the RDA: Coral reefs near bay mouths are particularly influenced by bay-derived inputs during wet-season runoff. The RDA reveals a

spatial gradient from the bay mouth to the western reef, with the eastern reef showing intermediate characteristics (Fig. 8), highlighting the role of bay-ocean exchange in transport processes.