Comment on egusphere-2022-216
Marco Corrales (Referee)

Referee comment on "Planktonic cnidarian responses to contrasting thermohaline and circulation seasonal scenarios in a tropical western boundary current system" by Everton Giachini Tosetto et al., EGUsphere, https://doi.org/10.5194/egusphere-2022-216-RC1, 2022

General comments:

This study is a follow up of Tosetto et al. (2021), in which the authors present the pelagic cnidarian distribution obtained in the ABRACOS 1 survey. In this new manuscript, the authors compare their previously published data (austral spring) with the new, unpublished data from ABRACOS 2 (austral autumn). In this instance, and different from Tosetto et al. (2021), they include water column structure and surface current velocities to address three hypothesis: (1): increases in continental runoff and (2) reduction of western boundary current intensity increase the presence of oceanic cnidarian species over the shelf and (3) a decrease in mixed layer depth is associated to high abundances of planktonic cnidarians.

Overall, the paper is very interesting as it shows how pelagic cnidarian communities are closely linked to different water masses and follow the distinction between the west Brazilian continental shelf, the transition zone, and the south equatorial current system, however, more appropriate data analysis to formally address the hypothesis mentioned above will strengthen the manuscript.

For hypothesis 1: can the presence of continental runoff in each sampling station be inferred from surface salinity values or other physical variables? In figure 3, panel d, one can see the large variability in salinity values during autumn compared to spring. I think the authors have some valuable information for each station that is being masked by just presenting the average.

For hypothesis 2: I am far from being an expert on regional circulation patterns
in the South Atlantic. The comparison between regions (Shelf, WBCS, transition zone and SECS) seems reasonable, and the discussion of the NBUC advecting oceanic plankton into the shelf during spring sounds reasonable. However, given my lack of familiarity with the system, just by looking at the current velocity vectors in Figure 2 (which are from 0-70 m), I infer that the northward surface currents are stronger during fall. Also, the NBUC influences processes from 50-300 m (Veleda et al. 2012), and Dossa et al. (2021) state that the NBUC core is shallower during the fall and thus they observe faster surface currents during the fall (page 10, second paragraph of the discussion). In summary, given the large depth range at which these plankton samples are integrated, it seems important to better correlate the current velocity data with the plankton abundance data (providing more information at deeper depths, differentiating between on-shelf and off-shelf current velocities, etc…) to better support the argument that circulation patterns are the drivers of cnidarian plankton community composition.

For Hypothesis 3: with CTD profiles for each station, it is possible to infer the mixed layer depth and perform a simple correlation between this property and total cnidarian abundance per station? There might be other variables that could be considered as predictor variables of cnidarian abundance (i.e. chlorophyll concentration). I think this approach will better address your third hypothesis.

The data analysis approach presented in Figure 5, 6 and 7 is very appropriate to address hypothesis that deal with differential changes in abundance, distribution and community composition of pelagic cnidarians across seasons and between regions, thus an hypothesis should be made accordingly.

Grammar corrections: The ones listed below are only some of the grammar errors that I found throughout the manuscript. I have found it very useful to ask a colleague who is a native English speaker to proofread the manuscript and find other grammar errors. Not being a native English speaker myself, it would be good to have someone else’s opinion on this topic:

Line 25 sentence two: ‘Due to their high…’ I would recommend rewriting that sentence.

Line 25 sentence 5: ‘recent studies appointed them…’ I also recommend improving the clarity of this sentence.

Line 230: ‘Most of the samples..’