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Interactive comment on "Variability of phyto- and zooplankton communities in the Mauritanian coastal upwelling between 2003 and 2008" *by* Oscar E. Romero et al.

Manuel Bringué (Referee)

manuel.bringue@canada.ca

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The manuscript by Romero et al. presents a unique dataset of a wide array of planktonic organisms, as recorded nearly continuously over a period of $\sim$ 5 years, at a site off Cape Blanc. Such multi-annual, high-resolution records are extremely rare, and the authors take advantage of data on multiple major planktonic groups generated over several years, to integrate the findings and inform on pelagic food web dynamics, the ecology of functional groups, and how environmental conditions affect planktonic organisms – and in turn, how those 'surface' signals can be encoded into the flux of sinking particles. I suspect a lot of effort was applied to the classification of each

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species into environmentally significant groups, which, to my knowledge, seems accurate. Overall, this study represents a great contribution to the current state of knowledge on planktonic food webs, and findings can be applied in other similar settings (e.g., upwelling systems) around the world.

The manuscript is a great fit for BG; the text and figures are of very good quality, analyses were well designed and I agree with most of the author's interpretations. My evaluation is overwhelmingly positive and I only have a few minor comments that I would like to see discussed/addressed before final publication of the manuscript, as detailed below.

General comments One aspect I would like to see discussed further is the possibility of the trap record missing on some parts of the pelagic food web dynamics. All major groups (along with lithogenic particles) are recorded simultaneously, which seems to indicate co-occurrence. We also observed the same patterns in the Cariaco Basin (Bringué et al. 2019, Progress in Oceanography 171: 175-211). I think part of the issue was well discussed in section 5.1, but there seems to be a decoupling between Chla and the trap record (RDA in Fig. 5 suggests that). Could it be that planktonic groups are only exported to the depths when 'ballasting minerals' are present (biogenic carbonates and silica, or lithogenics brought in by winds), but we are missing on all primary and secondary production that takes place without those denser particles? It would not undermine the data or findings, I just think it is worth discussing. Section 3.4: We usually need to justify the use of RDA by running a DCCA first (or at least a DCA on species data) – the length of the first gradient informs you on the linear vs unimodal character of the variability in the species data matrix. <2: linear and RDA is appropriate. 2-4: both ordination methods work. >4: unimodal and CCA should be used. See Canoco manual for instance. You also need to specify how the significance of the RDA ordination was tested (e.g., Monte-Carlo permutations and how permutations were done – should be the 'transect' option in Canoco because samples represent a time series; and whether the whole ordination is tested or just the first 1

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or 2 axes...). In general, the manuscript would benefit from being revised by a native English speaker; I provide some suggestions that may help. The notation m-2d-1 should be changed throughout the manuscript and figures to include the minus signs in superscript.

Detailed comments/suggestions L. 36: Add 'are' after 'dinoflagellate cysts'. L. 66: Delete 'as' before 'together'. L. 109-111: Consider the following publications (Bringué et al. 2018, Biogeosciences 15: 1-24; Bringué et al. 2019, Progress in Oceanography 171: 175-211) that also provided multi-year records of several phytoplanktonic and (micro)zooplanktonic groups in a highly productive coastal ecosystem. L. 144: Replace 'upwelling' with 'upwelled'. L. 237: Change 'was' to 'were'. L. 263: 'saponified'. L. 293: Replace 'upheld' with 'upwelled'. L. 298: Wind directions: please specify how the variable is defined (e.g., 360° from N? or relative to coastline?) This is important to understand what the ordination in the RDA of Fig. 5 means. L. 338: Mineral dust: a reference would be desirable to support the claim, as I don't see any analysis for this stated in the methods. I don't feel strongly about this though. L. 345: Replace 'clear' with 'clearly'. L. 356: I would rather say 'variability' than 'variabilities'. L. 359: 'fluxes were'. L. 373: 'attributed to'. L. 379: 'Most noticeably'. L. 385: Rephrase to something like: '... whose combined contribution always represent > 50% of the community...' L. 389: 'G. oceanica tends to be more abundant': is this supported by flux data? I could work out that other similar statements in this paragraph are supported by the data, but this one is hard to see based on Figs. 3b and 4b. Just making sure here; but if it is, there is no need to add anything to the text. L. 399: Replace 'more distinguished' with 'more recognizable' or 'clearer'. L. 418: Replace 'are present mostly throughout' with 'are usually present throughout'. L. 436: Significance testing method needs to be detailed (in the Methods section). L. 441: Replace 'at the negative site' with 'on the negative side'. Add 'the' in 'with the exception...' L. 442: Add 'ordinated on' before 'positive side'. L. 461: 'Ordinated on'. L. 487: I would use 'parameters' rather than 'frames'. L. 537: Replace 'we do not disregard either its occurrence' with 'we do not dismiss its possible occurrence'. L. 547: 'into'. L. 551: Either delete 'to' in 'let us to propose' or

change to ‘led us to propose’. L. 554: Replace ‘yet’ with ‘can still be’ and/or start the sentence with ‘However’ (and still delete ‘yet’). L. 616: Change ‘almost disappearance’ to ‘near-disappearance’. L. 621: Delete ‘only’ and use ‘discrepancy’ instead of ‘lag’, unless you are implying a temporal lag between temp records (or rephrase to say it is the only year with noticeable/substantial discrepencies). L. 629: Replace ‘unusual’ with ‘unusually’. Either say ‘lithogenic particles’ or ‘lithogenic fluxes’. L. 631: Add ‘with the’ after ‘matches well’. L. 638: I would replace ‘without adding appropriate information’ with ‘without providing detailed information’. L. 658: Consider replacing ‘outstanding’ with ‘marked’, ‘substantial’ or ‘exceptional’. L. 676: Delete ‘still’. Conclusions: make sure to be consistent in your use of past or present tense. L. 703: Replace ‘Instead’ with ‘Conversely’. L. 711: Replace ‘let recognizing’ with ‘allow (or allowed) for the recognition of’. L. 714: Make ‘groups’ plural. L. 719: Make sure tense is consistent. L. 723-724: Make ‘patterns’ plural. ‘as well as’. Consider splitting that sentence in two. Figure 4: Unless the authors are planning to place this figure in one column only, the figure would greatly benefit from a legend, explaining what each color represents next to each panel. It is very difficult to refer to the caption to read the figure. Figure 5: The authors need to specify what the color-coding for labels means, as well as black vs grey arrows. I also suggest the following: - Use the abbreviation ‘Chl-a’ to be consistent with the text (in figure and L. 1156), - Plot organism groups as dots (circles) and variables as arrows, to more easily distinguish them (just a suggestion). Figure 6: - What is OD-phot? This group was not defined. - “C-up phot’ in figure should be ‘Co-up phot’. Table 1: Vertical lines are usually omitted. Table 3: Typos in ‘Echinidinium spp.’ and ‘cyst of Protoperidinium monospinum’.

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