

***Interactive comment on “On the impact of the Bimodal Oscillating System (BIOS) on the biogeochemistry and biology of the Adriatic and Ionian Seas (Eastern Mediterranean)” by G. Civitarese et al.***

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“Abstract reads more like discussion than a concise summary of work done”.

- In the revised version of the ms., we will re-write the abstract.

“Summary of BIOS mechanism should be explained more clearly”.

- The idea behind this paper was not to explain the BIOS mechanism, but to describe some of its effects on the biogeochemistry of the Adriatic and Ionian Seas. However, we agree with the reviewer’s suggestion and we make the sentence on line 5 more

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clear for the reader.

“Material and Methods section should contain more detailed information on how Authors constructed the time series of nutrient data and how they were averaged. Some information (number of nutrient samples including depth and season) could be added to Table 2 (which in my opinion should become Table 1”).

- More detailed information will be added in the Material and Methods section.

“Section on possible impact of the BiOS mechanism on Adriatic biodiversity seems to me the weakest part: linking observations of changes in plankton community structure with years of the recorded presence of particular species cannot be considered as confirmation of the BiOS switching system”.

- We do not intend to use biological observations to confirm the BiOS mechanism. Instead, we would like to study the role of the BiOS in the migration of allochthonous organisms in the Adriatic from the possible source areas of the Western Mediterranean/Atlantic and the Levantine/Aegean/Red Sea.

“There is no systematic long-term biological data set, i.e. monitoring of biota with relevant spatial and temporal coverage in the Adriatic, that could assure dating of biological records as presented in table 1”.

- Since the Adriatic Sea is one of the most studied marine regions in the world, the international scientific literature is rich of peer-reviewed articles dealing with the results coming from the analysis of numerous biological time-series collected in the coastal and open Adriatic, often spanning for several decades. Therefore, we would like to clarify that the evidences on the first occurrence and relative dating of allochthonous organisms presented in our ms. have been reported from the peer-reviewed articles based on long-term biological observations.

“Moreover, it is very difficult to link changes in community structure or the appearance of a particular short-lived mesozooplankton organism in the middle/northern Adriatic

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with a particular BIOS phase (operating on a multiyear time scale) so the title of Table 1 (Possible relationships between biological records and NIG circulation) is inappropriate”.

- Even though mesozooplankton organisms have relatively short life cycle (15-30 days), the populations maintain their continuity and are advected within the water mass. Anyhow we will change the title of Table 1 (that will become Table 2, following the reviewer’s suggestion) in: “Biological records and changes in NIG circulation”.

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