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Biogeosciences Discussions

Interactive comment on "Evidence for aggregation and export of cyanobacteria and nano-eukaryotes from the Sargasso Sea euphotic zone" *by* M. W. Lomas and S. B. Moran

Anonymous Referee #1

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Lomas and Moran present an interesting, timely study of the role of aggregation of small phytoplankton in carbon export from the euphotic zone. I have no major issues with this paper. The text is well-written, the measurements appropriate and properly-executed, and all figures are clear, representative, and necessary. I have only a few (minor) suggestions for the authors before this manuscript has final acceptance.

1. page 7176, line 10 or so, re: the assumption that size-fractionated contributions to biomass are equivalent to size-fractionated contributions to primary productivity. The authors get to this eventually in the Discussion, but the shakiness of this assumption probably should be stated up front. Sometimes, this assumption is fine, as the authors

state with the appropriate references. Other times, it's not a great assumption (e.g. see Fernandez et al. 2003) and the rigor of this assumption also depends on how biomass is measured (carbon vs. chlorophyll, etc). 2. p. 7179, line 15. Does PF = proportion fraction? If so, perhaps define this earlier. The definition appears to have been omitted. Also, please check the use of mPF with or without the subscript "i" throughout the text. It is not apparent to me why the subscript is needed. 3. Please include a description of statistical analyses used somewhere in the Methods section. 4. p. 7182, line 17. The manuscript states that "larger diatoms and dinoflagellates" comprised the biomass below the euphotic zone. Was this inferred or observed? What data were used? (Pigments? Cell counts?)

Fernandez, E., Maranon, E., Moran, X.A.G., Serret, P., 2003. Potential causes for the unequal contribution of picophytoplankton to total biomass and productivity in oligotrophic waters. Marine Ecology Progress Series 254: 101–109.

Interactive comment on Biogeosciences Discuss., 7, 7173, 2010.