

Ocean Sci. Discuss., community comment CC1
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Comment on os-2021-109

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Community comment on "Clustering analysis of the *Sargassum* transport process: application to beaching prediction in the Lesser Antilles" by Didier Bernard et al., Ocean Sci. Discuss., <https://doi.org/10.5194/os-2021-109-CC1>, 2021

Throughout the text: "*Sargassum*" is the genus name of the pelagic, brown algae discussed. Accordingly, it should be italicized wherever used.

Lines 79-80: Citing Putman et al. 2018 (already cited elsewhere) would be appropriate here as they model the % of *Sargassum* that follows these routes.

Lines 91-96: I am confused what HYCOM output you are using. What is reported here (GOMu0.04/expt_90.1m000 version) appears to only extend from latitude 18N to 32N and is thus outside of the area of this study. Can you please clarify? Did you run your own HYCOM at 1/25 degree resolution? The Global Analysis of HYCOM uses a grid of 0.04 degree longitude and 0.08 degree latitude, is this what you actually used?

Line 101-103: See also, Putman NF & He R (2013) Tracking the long-distance dispersal of marine organisms: sensitivity to ocean model resolution. Journal of the Royal Society Interface, 10:20120979

Line 104: I am confused, what is the basis for assuming the "optimal factors of $C_w = 0.01$ "? Surely this is not the case based on data from Johns et al. 2020, which showed no evidence that a windage factor of 1% was appropriate for *Sargassum*. They simply picked the "reasonable" value that has been used in the earlier publication Putman et al. 2018. The value of 1% was chosen by Putman et al. 2018 to test the sensitivity of model predictions to windage and did not claim that it was optimal (or even somewhat correct). Work since that point has been conducted which seems to suggest that the situation is somewhat more complicated, see Putman et al. 2020 (already cited elsewhere) and Johnson, D.R., Franks, J.S., Oxenford, H.A. and Cox, S.A.L., 2020. Pelagic *Sargassum* Prediction and Marine Connectivity in the Tropical Atlantic. Gulf and Caribbean Research, 31(1), pp.GCFI20-GCFI30. Whether the best windage value is 0, 0.5%, 1%, 3% or something else likely depends on the oceanographic region and the ocean circulation model and wind product used.

Line 112: I think that "Putman et al. (2016)" should be "Putman et al. (2018)"

Line 206: change to "current speed differences are relatively small..."

Line 334: change to "...due to the North Equatorial Current..."

Lines 360-361: Another issue may be that ocean current patterns may be highly important for "non-beaching" events (e.g., the currents are directed so that material doesn't reach the island), but for *Sargassum* to beach there needs to be *Sargassum* present. Thus, currents might be in a state to transport material to the island, but if there is no *Sargassum* present, there can be no beaching. Am I correct that this predictive model is based only on circulation/wind and not *Sargassum* abundance/coverage/distribution?

Lines 400-406: You may wish to draw reader's attention to the fact that there is considerable interest in monitoring and predicting coastal inundation by *Sargassum*. For instance, you may note how your smaller-scale study's goals might enhance the region-wide efforts such as the *Sargassum* Inundation Reports (SIR) discussed here:

Trinanes J, Putman NF, Goni G, Hu C, Wang M (2021) Monitoring pelagic *Sargassum* inundation potential for coastal communities. *Journal of Operational Oceanography* 14, in press (published online).