The authors have made significant modifications and improvements to the manuscript by addressing all of the reviewers' suggestions. My comments on this revised version are as follows:

Please state clearly that the effective resolution of 1/9° of the high-resolution model only solves meso-scale processes (~1 km) because you used the grid degradation method described in Levy et al., 2012, and a Lagrangian method using an analytical calculation of streamlines on an Arakawa C Grid. Additionally, please discuss the significance of your results regarding connectivity studies that used ocean general circulation models with "higher" velocity field resolution and also Lagrangian method using spatial interpolation with a Runge-Kunta scheme (e.g. 1/16° in Ser-Giacomi et al., 2020 and Legrand et al., 2022, or 1/12° in Assis et al., 2022 and Krumhansl et al., 2023).

The authors should simplify the message in the method section 2.2.5. The significance of betweenness should be moved to the discussion part. Additionally, the explanation about the transformation of probabilities of connection into distance metrics should be shortened, as it is mandatory when using the Dijkstra algorithm.

On the new Figure 10, it could be interesting to have the betweenness distribution for all 16 sites with the model resolution as a factor (i.e., three boxplots) in addition to Panel a). The network displayed in Panel b) is very hard to interpret. A solution could be to use transparency and/or a log scale on the distance.

References:

Ser-Giacomi, E., Legrand, T., Hernandez-Carrasco, I., & Rossi, V. (2021). Explicit and implicit network connectivity: Analytical formulation and application to transport processes. Physical Review E, 103(4), 042309.

Legrand, T., Chenuil, A., Ser-Giacomi, E., Arnaud-Haond, S., Bierne, N., & Rossi, V. (2022). Spatial coalescent connectivity through multi-generation dispersal modelling predicts gene flow across marine phyla. Nature Communications, 13(1), 5861.

Assis, J., Neiva, J., Bolton, J. J., Rothman, M. D., Gouveia, L., Paulino, C., ... & Serrão, E. A. (2022). Ocean currents shape the genetic structure of a kelp in southwestern Africa. Journal of Biogeography, 49(5), 822-835.

Krumhansl, K., Gentleman, W., Lee, K., Ramey-Balci, P., Goodwin, J., Wang, Z., ... & DiBacco, C. (2023). Permeability of coastal biogeographic barriers to marine larval dispersal on the east and west coasts of North America. Global Ecology and Biogeography