Comment 1. Mainly I would be careful in the conclusion drawn by the authors. Since this is purely a numerical modelling study with no ground-truth data and validation of the model, the authors cannot conclude that a 3D approach is "providing more-accurate predictions". What this study shows is that including a three-dimensional component to a dispersal model alters the connectivity between different marine compartment for marine debris transport in coastal areas.

All the reviewers made the same comment and we agree with them. The conclusion will be changed as suggested by the reviewer.

Comment 2. An interesting result is how the "strong" vertical mixing scenario leaks particles off-shore which could explain natural sorting of plastic debris in coastal environment. The authors should further discuss this as well as the relation between vertical mixing and characteristics of marine litter (type, size, buoyancy etc..).

We already discussed the role of vertical mixing on the "scape" of particles from the bay (page 4, lines 20-24). As discussed at the response n◦5 to referee 1, the objective of this paper is to discuss the relevance of a 2D approach for floating low-dense particles, and the impact of the physical properties of microplastics have been discussed in depth in our next paper (Jalon-Rojas et al. 2019, Marine Pollution Bulletin). We will include the reference in revised version.

Comment 3. I don't think the manuscript as well as the title should focus only on microplastics. Some findings of this study could apply for larger "young" object.

We prefer to focus the paper on microplastics since the initial motivation is that most of the studies on microplastic modelling consider a 2D approach. However, we will include that the finding can also be applied for other floating objects.

Comment 4. Vertical diffusivity of marine debris likely changes with its characteristics, thus the comparison between "weak" and "strong" vertical mixing is an evidence of natural filtering for the transport of marine litter offshore. The authors should emphasize this point.

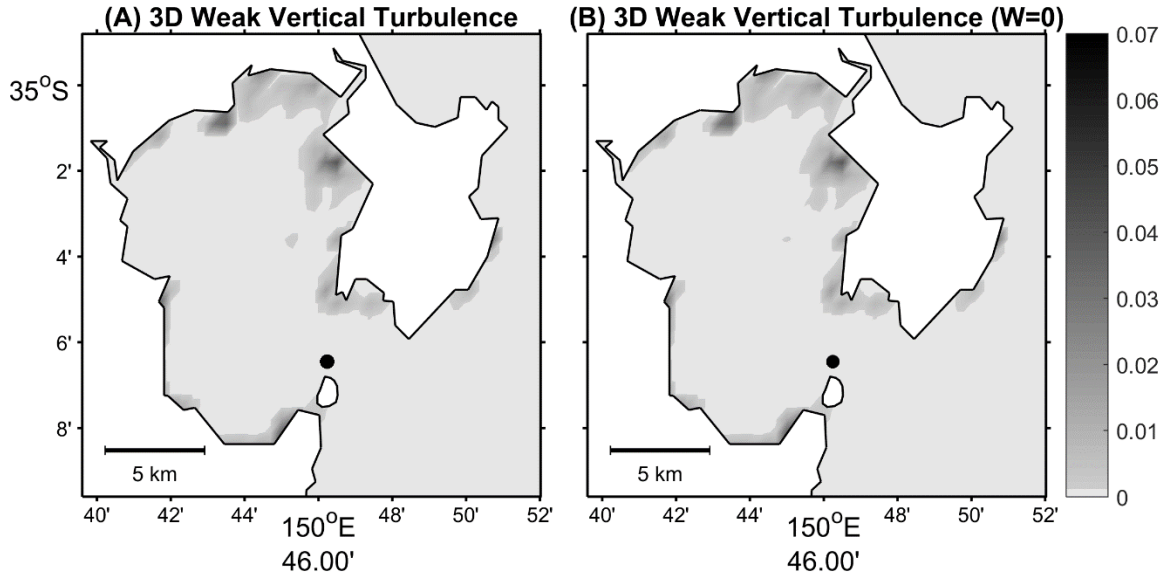
This paper focuses on the modelling of one kind of particles: low-dense floating microplastics. We have briefly discussed the implications of these results for another kind of particles, but this is the object of our following paper (Jalon-Rojas et al. 2019, Marine Pollution Bulletin).

Comment 5. Finally, the formulation and the amplitude of particle beaching is not clearly explained in the manuscript and nor is the influence of vertical advection (W velocity). The authors should provide more details on these aspects.

Particles can beach when their positions are inside the land domain. This information will be detailed in the manuscript.

Regarding vertical advection, the selected period is characterized by negligible vertical currents (3-4 order of magnitude lower to horizontal currents), so the differences between the different scenarios mainly came from vertical dispersion. We can prove that the differences between the 2D and 3D scenarios are mainly due to vertical dispersion by comparing the probability density map of two scenarios: (a) 3D approach with low turbulent conditions and vertical currents; (b) 3D with low turbulent conditions and no vertical currents (see Figure below). Results show that the accumulation patterns of particles are practically identical for both scenarios, so vertical velocities have a low impact

and the difference between the 2D and 3D approaches discussed in this paper, are mainly related to vertical dispersion.



This figure will be included as Supplementary Material.