Supplement 2

In order to prove that vertical currents do not impact the results and the differences between the 2D and 3D scenarios are mainly due to vertical dispersion, probability density maps of microplastics released at site 1 (Fig. 1) were calculated for two scenarios (Fig A): (a) 3D approach with low turbulent conditions and vertical currents; (b) 3D with low turbulent conditions and no vertical currents. In particular, Figure A compare this probability distributions after 5 simulation days for rates of 20 particles per hour. Results show that the accumulation patterns of particles are practically identical for both scenarios, so the difference between the 2D and 3D approaches discussed in this paper, are mainly related to vertical dispersion.

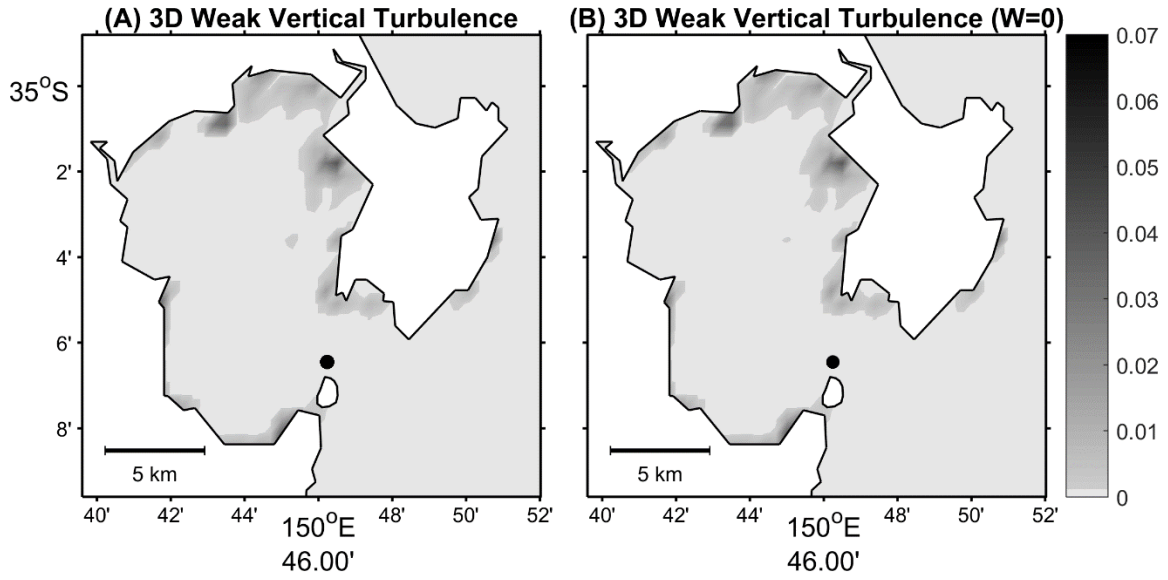

Figure S2. Probability density distribution (greyscale bar) of microplastics released at site 1 (black dot) after 5 days of simulation under low turbulent conditions: (A) considering vertical currents; (B) with vertical currents equal to 0.