

# How Do They Sink? Influence Of Suspended Sediment On Microplastic Settling Velocity

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The presence of significant amounts of microplastics (MPs) in freshwater environments highlights the need to better understand the temporal and spatial dynamics of these persistent pollutants. As MPs can be transported in the water column, their settling velocity becomes a key parameter for investigation. Previous studies have focused on how factors like density, shape, and flow conditions affect the settling velocity of MP particles. It is also suspected that suspended sediments (SS) may enhance the settling velocity of MPs, but their impact has not been thoroughly examined. This study involves a series of laboratory experiments aimed at exploring how SS concentrations affect MP settling velocity in calm water conditions. We used twelve types of MPs with various shapes to assess how different particle surface areas interact with SS. Preliminary results indicate that MP settling velocity strongly depends on the SS concentrations for all types of MP particles. Additional experiments were aimed at further understanding how sediment size and MP shape influence the efficiency of the scavenging process. Based on these results, a new predicting model for the settling velocities of MPs in presence of SS has been developed. Current findings emphasize the need to consider SS concentration as a crucial parameter in developing MP transport models, given its significant effect on the mass balance of MPs in aquatic ecosystems.