We tested the effects of two types of microplastics, 50 µm polystyrene (PS) calibration beads and polylactic acid (PLA) plastic body wash scrub particles, and one type of plant-derived body wash scrub particle on a natural phytoplankton assemblage through a 7-day mesocosm incubation experiment in a temperate, mesotrophic lake (Otsego Lake, Otsego County, NY, USA) in summer 2016.