MO085 Effects of microplastics on benthic macroinvertebrates in freshwater ecosystems L. StuurmanP. Redondo Hasselerharm, E. Peeters, Wageningen University / Aquatic Ecology and Water Quality Management; E. Besseling, A. Koelmans, Wageningen University / Aquatic Ecology and Water Quality Management Group. Recently, the presence of microplastics (MPs) in the freshwater environment has been reported and little is known about the effects these MPs can have on freshwater organisms. It is expected that sediment-dwelling species are especially susceptible to the presence of MPs in freshwater ecosystems, as sediments could act as a sink for MPs. Previous studies done on the marine environment already showed that MPs can have an effect on benthic species, such as the reduction of fitness in the lugworm *Arenicola marina* (L.). Therefore, the aim of this study is to investigate the effects of MPs on species which are suitable for representing the freshwater benthic community. For this purpose, single-species toxicity tests were performed, where species were exposed for 28 days to 8 different concentrations of polystyrene (PS) beads with a size range of ~40-90?m. The concentrations tested in this study ranged from 0.1% to 20% (in order of percent dry weight), including the highest concentration of MPs found in the freshwater environment, which is ~1%. The dose-response relationships were calculated for each species using growth/weight as a sub-lethal endpoint and survival as a lethal endpoint. This data will be used to elaborate a Species Sensitivity Distribution (SSD), showing the differences in susceptibility for MPs between species. The SSD can also be used in the future to determine the maximum allowable concentration of MPs in the freshwater environment.