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## **Towards a greater understanding of the presence, fate and ecological effects of microplastics in the freshwater environment**

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## **Propositions**

Accompanying the thesis

‘Towards a greater understanding of the presence, fate and ecological effects of microplastics in the freshwater environment’

by **Alice A. Horton**

1. Rivers can act as a sink for dense plastics and anthropogenic particles (this thesis).
2. Physiological characteristics of organisms are equally as important as environmental exposure in influencing the ingestion of microplastics (this thesis).
3. Within the environment, microplastics are unlikely to significantly alter the toxicity or bioavailability of hydrophobic organic chemicals (this thesis).
4. Microplastics do not necessarily cause hazardous effects over acute timescales, even at high concentrations (this thesis).
5. It is essential to combine environmental data with hazard studies to determine effect thresholds and likely ecological harm within realistic exposure scenarios and timescales (this thesis).
6. Given the increasing usage, disposal and degradation of plastics globally, ecological risks from plastics are likely to increase (Geyer et al. 2017, Koelmans et al. 2017)
7. There is currently no widely agreed definition of a microplastic, leading to ambiguity and inconsistencies between studies (Hartmann et al 2019).
8. Microplastics are complex and diverse materials, therefore they should not be considered as a single type of pollutant (Rochman et al 2019).
9. Realistic, chronic exposure to microplastics may have sublethal effects, with implications for population structure and dynamics (Galloway et al 2017, Wright et al 2013).
10. Due to the significant influence of human activities on earth systems, we have entered a new geological epoch known as the Anthropocene (Crutzen 2006, Waters et al. 2016)
11. The biggest environmental problem today is our desire to identify and solve simply one problem, when in reality there are a variety of problems, which will all interact (Jared Diamond).
12. Both climate change and habitat loss pose significant threats to global biodiversity (Jantz et al 2015, Urban 2015).