

## **Microplastics, nanoplastics and co-contaminants: Fate, effects and risk assessment for biota, the environment and human health**

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Plastic pollution is one of today's major environmental issues. The widespread contamination of the environment with plastics of all sizes is receiving growing interest from the scientific community, the public and policy makers. Microplastics (microscopic plastics, <5 mm) and nanoplastics (nanoscopic plastics, <100 nm) can be directly manufactured, or derive from the fragmentation of larger debris. Owing to their hydrophobicity and relatively large surface areas, these plastic particulates can accumulate metals and persistent organic pollutants (POPs) and/or develop microbial biofilms, hosting potentially pathogenic microbes. Microplastics are readily consumed by a wide range of marine biota which can impair the health of the individual with potential adverse outcomes for ecological processes. The risks plastic particulates pose to human health is an emerging topic of concern. Here we focus on better understanding the effects plastic particulates and associated co-contaminants have on biota, from the sub-organismal to community levels of biological organisation, and human health. This session aims to discuss three main questions: (1) What are the mechanisms underlying the effects observed in the laboratory and in the field?; (2) What are the consequences of these mechanisms and observations for environmental exposure, effects and risks, including human health?; and, (3) How can scientific knowledge inform mitigation strategies and policy? We invite high quality contributions that provide either innovative methodologies of general importance, novel mechanistic understanding of effects of plastics, or that show to what extent scientific knowledge from adjacent disciplines can be used for the risk assessment of plastic particulates. We encourage research testing biomarkers of fitness with ecological consequence (i.e. maintenance, growth, survival and reproduction), using concentrations with environmental relevance, or which consider the risk plastics pose to ecological health and processes including ecological modelling. Investigations, and development of pathways and risk assessment, which consider routes by which humans may be exposed, or assess toxicological risk of micro- and nanoplastics to humans are encouraged.