

Microplastics; occurrence, levels and implications for environment and food safety in Norway.

An opinion from the Norwegian Scientific Committee for Food and Environment (VKM)

There is global interest in the impact of plastic waste on land, in waterways and in the ocean. Small plastic particles designated as “microplastics” are widespread in the environment, presence in organisms and may have harmful effects on organisms and ecosystems. Global consumption of plastics is increasing, and global emissions are likewise expected to increase.

Plastics that are released into the environment slowly degrade into smaller pieces, from macroscale plastics to microscale plastics, which further fragment into nanoscale. Due to their resistance to biodegradation, many commonly used polymers can remain in the environment for hundreds of years, and be transported over long distances. Plastics contain a mixture of chemicals added during manufacture, and may also adsorb and act as vectors for persistent, bioaccumulative and toxic contaminants (PBTs) from the environment.

International and national media is drawing attention to the microplastic issue, and in fisheries and aquaculture there is a growing concern on the potential impact on fish productivity and physiological processes.

Microplastics have been subject to several recent reviews and risk assessments from international authorities, which addresses both environmental effects and potential human health effects. The most recent assessments include a statement from the EFSA Panel on Contaminants in the Food Chain (CONTAM) on the presence of microplastics and nanoplastics in food, with particular focus on seafood in 2016 (EFSA, 2016), and a technical paper on the status of knowledge on Microplastics in fisheries and aquaculture from Food and Agriculture Organization of the United Nations (FAO) (Lusher et al., 2017).

VKM has noted a growing public and scientific concern and a corresponding demand for information and data. Furthermore, possible national implications for food resources, environment and human health effects have not been assessed. Thus, the VKM consider it necessary to provide a summary of the status of knowledge of presence of microplastics and possible specific implications for environment and food safety under Norwegian conditions.

Effect goal/objectives

Contribute to improved understanding about sources and effects on microplastic pollution. Provide an overview of main national and international ongoing initiatives, and highlight data gaps where specific Norwegian data is needed.

Result goal/objectives.

An opinion presenting a summary of knowledge from the recently published reports and recent literature on contamination by microplastics with a focus on the use and release of microplastics in Norway

Mandate

The steering committee of VKM has self-initiated a mandate for an opinion on microplastics (MP) based on recently published international and/or national reports complemented with literature from December 2016 to present date. The opinion will summarise the state of knowledge on the presence of MP in the environment and the implications for the ecosystem, terrestrial and aquatic organisms, food production and human health. It will also elucidate any specific Norwegian conditions additional to the information available in the recently published reports.

References

EFSA Journal 2016;14(6):4501.

Presence of microplastics and nanoplastics in food, with particular focus on seafood (2016)
<http://onlinelibrary.wiley.com/doi/10.2903/j.efsa.2016.4501/full>

Lusher et al 2017/Food and Agriculture Organization of the United Nations (FAO) 2017: 615

Microplastics in fisheries and aquaculture. Status of knowledge on their occurrence and implications for aquatic organisms and food safety
<http://www.fao.org/3/a-i7677e.pdf>

