
Longitudinal distribution of floating microplastics in rural rivers and potential (temporal) sinks

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Abstract

It is assumed that 80% of the marine plastic originates from land and major parts may be transported via rivers. In each river studied so far for plastic contamination, plastic was found. However, the longitudinal distribution of plastic in rivers is largely unknown. We investigated the microplastic distribution along a 70 km long stretch of a German river, starting at the source. We sampled floating microplastic every seventh kilometer and upstream and downstream of major inflows, towns and waste water treatment plants. Results showed that the amount of suspended plastic does not correlate with the kilometers flew. Some sampling points downstream other contain less plastic than sites located more upstream. Weirs and reservoirs may act as sinks for microplastics as decreasing flow velocities lead to higher sedimentation rates. This may enhance the uptake of plastic by benthic organisms and (temporally) excludes plastic from the water column. This may result in unexpected patterns of plastic distribution in freshwaters.

Keywords: sinks, weirs, floating debris, distribution, sources

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