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Source to Sea – Investigation of Microplastics in an agricultural catchment in Eastern England

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Global plastic demand has led to a growing abundance of microplastics being detected across all environmental compartments. These microplastics pose a long-term health risk to ecosystems through accumulation, ingestion and leaching of chemicals. Knowledge of microplastics in river catchments has been limited due to their complexity, however as microplastics have a terrestrial origin, freshwater systems are considered to be a key pathway to other environments. They can transport microplastics to marine environments, act as temporary and long-term storage and aid degradation of larger plastics into smaller fragments that enter the aquatic system.

As microplastics are linked to anthropogenic sources, much of the focus has been placed on urban and industrial areas, but in this study, we aim to assess a rural, agricultural catchment. River Witham catchment in Eastern England covers the area of 3,000km^2 with a population of ~400,000. The river provides important drainage for the high-grade agricultural land in the fens and it discharges into the Wash, which is England's largest nature reserve as well as an important area for shellfish aquaculture.

This presentation will address the preliminary findings of this project by detailing the spatial variability of microplastics storage in riverbed sediments in an agricultural catchment. Data suggests that microplastic concentration could be as high in rural areas as it is in urban areas. The findings are expected to help improve the knowledge of microplastic contamination on a catchment level and to act as a basis for regional environmental protection.