Plastic pollution is an environmental concern due to its widespread presence. While particle size and abundance are crucial for modelling ecological impacts, like ingestion, these factors are not yet well understood in rivers. Moreover, many studies focus on one size class of plastic particles. This study examined the relationships among size dimensions, size-concentration, and size-cumulative surface area of a wide size range of plastic particles collected with trawl nets from upstream and downstream sites in two Dutch rivers during 2023 and 2024. Measurements included the longest length, surface area, circumference, and particle count. Geometric means of particle concentrations and cumulative surface area concentrations were calculated for equally sized bins. Reduced major axis and ordinary least squares regressions were used to determine the slopes of bivariate relationships between size dimensions (length–surface area slopes: 1.46 – 1.83; length–circumference slopes: 1.02 – 1.07; circumference–surface area slopes: 1.30 – 1.76), size-particle concentration (slopes: 0.19 – 1.44), and size-cumulative surface area (slopes: 5.15 – 7.71). Significant positive relationships were found among size dimensions. A significant increase in particle concentration with increasing length was observed only at the length threshold, which was applied because microplastics were accidentally sampled. Overall, particle length was not a reliable predictor of particle concentration. However, cumulative surface area concentration increased significantly with length. This study is the first to explore the relationship between size dimensions and concentrations of plastic particles across a broad size range (micro to macro) in Dutch rivers, providing urgent baseline information for monitoring and impact assessment.

7.12.P-Th339 From Source to Sea: Identifying Macrolitter Sources for Sustainable Litter Management at the Yser River Mouth

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Aquatic litter pollution is a complex challenge and the sources of most items found in the environment remain poorly understood. Identifying these sources is essential for targeted decision-making, effective mitigation, and evaluating policy impact. In this study, we combined year-round riverine and coastal litter observations at the Yser River mouth in Nieuwpoort, Belgium, with the Matrix Scoring Technique based on Tudor & Williams (2004) for litter source identification, a method that links litter items to the human activities (i.e. fishing, agriculture) that release them. Our aims were to determine the major contributing sectors, compare riverine and beach litter composition, and assess seasonal differences across a riverbank, harbour, and beach location. Eight litter samples were collected at the Yser River mouth from autumn 2024 to autumn 2025, including all anthropogenic items > 2.5 cm. The samples were sorted into the EU standardized Joint List of Litter Categories (J-list), and the Matrix Scoring Technique was applied to assign different likelihood levels for each litter category to 54 pre-defined and standardized sources. Regional conditions were taken into account by using thematic maps and expert knowledge. Source contributions were calculated from item counts to produce the final likelihood matrix. The dominant sources of macrolitter along the Yser River mouth vary spatially, with tourism and households contributing across all sites but sewage outlets appearing only at the riverbank, harbour and boating activities only downstream, and marine inputs such as fishing most prominent at the beach. These patterns indicate a transition from mainly land-based recreational and residential sources upstream to a mix of urban-industrial, maritime, and tourism-related inputs toward the coast. This study shows that integrating standardized litter categorization with the Matrix Scoring Technique provides a robust, transparent, and scalable way to identify the human activities that generate macrolitter across aquatic environments. These insights can inform coastal management, targeted mitigation measures, user education, enforcement, and funding allocation. Our findings also highlight the need to develop practical interventions, including awareness campaigns addressing intentional littering. This work advances source-identification methods and contributes essential evidence for designing more effective, regionally tailored aquatic litter reduction strategies.

7.12.P-Th340 Microplastic Pollution and Ecotoxicological Impact of the surface waters and sediments of rivers collected in Japan

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Microplastic (MP) pollution is a major global concern increasingly recognized as a threat to human and planetary health. MPs enter the ocean through multiple pathways—including urban dust, textile washing, and fragmentation of marine plastic litter—but few studies have quantitatively assessed the ecological risks associated with different MP sources. Here, we conducted a preliminary ecological risk assessment of MPs in Japanese river surface waters and estuarine sediments, using measured concentrations and predicted no-effect