

O34.1**Profiling microplastic pollution in mangrove dominated estuaries of the Eastern Cape region in South Africa.**

Jaime Johnson¹, Logan Londt¹, Sershen Naidoo^{1,2}, Anusha Rajkaran¹

¹University of the Western Cape, South Africa. ²Institute of Natural Resources, South Africa

Abstract

Microplastic (MP) pollution is a global environmental threat. A wide variety of plastic spheres, differing physically and chemically, have been detected in all major marine environments and various marine fauna. Baseline levels of MP pollution in many biodiverse ecosystems and geographical regions have not yet been established and this is particularly true for Africa. This is worrying since countries like South Africa rank highly in terms of marine plastic pollution globally. Furthermore, recent reports suggests that these ecosystems are sinks for plastic pollution. This study forms part of the first comprehensive assessment of MP pollution in mangrove-dominated estuarine systems in South Africa, providing some of the first data on estuarine MP levels in the Eastern Cape region. The study aimed to quantify the density, typology (size, morphotype, colour, level and chemical composition) and distribution of microplastics in relation to selected disturbances acting on these systems. Sediment samples were collected within three intertidal zones (at varying distances from the main channel) in four mangrove-dominated estuaries. Surface water samples were collected at the mouth of each estuary. Preliminary results suggest potential differences in MP profiles between urban and rural systems; urban systems had higher MP levels (~ 70% more) in both sediment and surface water. For this study microfibers dominated in sediment and surface water. The results are in agreement with recent studies which have reported higher levels of MPs in anthropogenically disturbed estuaries and the dominance of fibres. This study, therefore, supports a growing opinion that mangroves represent MP sinks. The ultimate goal of the study is to both understand and communicate the implications of MP pollution in this ecosystem to encourage land use and waste management practices that reduce plastic pollution inputs into them.

Keywords

Plastics, Mangrove, Estuaries, South Africa