
Addressing Marine Litter Pathways and Climate Change in Indonesia (Selayar Island)

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Abstract

David Christie, Sophie Ward, Nia Jones, Noir Purba, Munawir B. Pratama, Komali Kantamaneni, Ibnu Faizal, Jonathan Demmer, Matthew Lewis, Peng Huang Indonesia, one of the world's largest archipelagic nations, is particularly at threat from both climate change and marine litter. Debris in the Indonesia Seas is a multifaceted, transboundary issue, originating both from local rivers and from other countries, and is affected by the complex circulation patterns in Indonesia Seas. These patterns are susceptible to climate change and sea-level rise, which in turn will modify the debris pathways. Mitigation strategies are hampered by a lack of data on offshore debris transport pathways. River discharge has been modelled on a local scale but less is understood about the pathways after the waste has entered the sea. In this project we sought to bring researchers together: to share methodology, develop a joint platform to disseminate results and engage communities, and to initiate larger future research projects. In doing this we undertook Lagrangian particle tracking of potential marine plastic litter off the Indonesian coast; we considered how sea-level rise may alter marine litter sources through inundation of coastal regions; we organised school outreach activities based around raising awareness of marine litter and climate change; and lead an academic knowledge exchange workshop to connect researchers across the UK and Indonesia. Central to this project was a new web-based visualisation platform, allowing non-scientists the opportunity to visualise, explore, and understand the pathways of plastic debris from coastal sources to coastal and offshore sinks. Here we present the visualisation platform, results of the school outreach activities and knowledge exchange which have supported in marine litter communication in the region.

Keywords: microplastic, particle tracking, exchange, knowledge, knowledge, climate change

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