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Study finds that most plastic litter in Cape Flats rivers washes ashore close to river mouths



Large amounts of litter washed ashore on Milnerton Beach near the mouth of Rietvlei following a winter storm.

Photo: Peter Ryan

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Rivers are assumed to be one of the major conduits for plastics entering the sea, but little is known about the interchange of plastic litter between rivers and coastal waters.

In a study recently published on [Estuarine, Coastal and Shelf Science](#) journal, researchers from the University of Cape Town's (UCT) FitzPatrick Institute of African Ornithology recorded the amounts of litter washing ashore along 2.4 km of Sandy beach on the northern shore of

False Bay. The study was conducted from April to June 2020 during the initial COVID-19 lockdown when beaches were closed to the public. As a result, all litter arriving on the beach during this time washed ashore.

The study found that when the Zandvlei estuary was closed, litter washed ashore more or less evenly along the coast with only a slight concentration in Muizenberg corner presumably due to local currents in False Bay. However, when Zandvlei was opened to the sea for the first winter storm, litter was concentrated within a few hundred metres of the estuary mouth.

“We were surprised by how little litter from the Zandvlei dispersed more than 500m from the estuary mouth,” said Professor Peter Ryan, director of FitzPatrick Institute of African Ornithology. “To get an idea of the proportion of litter from the Zandvlei washing ashore, we deployed marked plastic and wood blocks where the river entered the sea. On a falling tide, 99% of blocks were recovered from the beach close to the river mouth. On a rising tide, most blocks were carried back into Zandvlei, where they travelled up to 1.2 km inland.”

Ryan commented: “It seems that most litter from rivers entering False Bay wash ashore. This is encouraging because it means that by cleaning beaches around river mouths, especially after rain events, will help to reduce leakage of plastic from land-based sources into the sea.”

The study builds on a paper published by Ryan and his colleagues in 2020 showing that superficial large litter items – the kinds of things that can easily be collected by manual beach clean-ups – account for more than 90% of the mass of plastic on a remote beach in the West Coast National Park.

Microplastics, especially microfibres, are superabundant on beaches and in the sea, but they are largely trivial in terms of the mass of plastic. “In the long term, we need to rethink the way we manage our plastic waste, but for now, removing large plastic items from rivers and beaches prevents them breaking up into microplastics, which are much harder to deal with,” said Ryan.

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