

# Marine debris travels far

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Credit: James Cook University

Rubbish dumped at sea off Townsville will end up on the popular Mission Beach holiday spot, while Cairns' marine trash goes straight to the exclusive Port Douglas resort—according to new computer modelling by a James Cook University scientist.

JCU's Kay Critchell fed local wind and tide data into the state-of-the-art SLIM modelling system. She then tracked drift patterns for an average-sized plastic water bottle that found its way into Townsville's Ross River or Cairns' Trinity Inlet, or was dumped at sea along the Great Barrier Reef.

Rubbish from the Ross River washed ashore in the northern beachside suburb of Pallarenda, while plastic from Trinity Inlet headed for Port Douglas. The model showed plastic debris from a shipping lane off Townsville's Magnetic Island would land on the popular Mission Beach, about halfway between Cairns and Townsville.

Ms Critchell said the findings were consistent. "For floating plastic the big driver was the wind. The main collection points were south or south-east facing beaches and those in close proximity to a river mouth."

She said with limited resources available to beach clean-up crews, it's important their activities are targeted. "According to this study, the best use of their time would be to patrol beaches facing south or south-east after a big high-tide or storm."

She said there were major differences between the respective ranges of waste that entered the ocean from rivers and that which came from shipping lanes. "The average distance travelled from a river mouth is 18.8 kilometres, from shipping sources it's 225 kilometres."

Ms Critchell said while the Ross River was not the Ganges, it isn't a terribly good environment either. "I spent Friday with a group on the river bank along the shallows and we filled a truck with rubbish from the river in five hours. And there was plenty we couldn't get."

She said the main thing to remember was that environments can be restored.

"We can use things like rubbish collection booms in the shallows that trap rubbish but have a low-impact on marine life, we can use waterwheels that scoop [plastic](#) waste out of the rivers, but these things take effort and are expensive.

"What is most important is that the rubbish not get into the environment in the first place. It really comes down to personal responsibility—people disposing of their rubbish properly. It's a huge and growing issue, but it's not hopeless."

The next phase of the study will examine what happens to debris when it's washed out to sea again from its original destination beach.

**More information:** Modelling the fate of marine debris along a complex shoreline: Lessons from the Great Barrier Reef, *Estuarine, Coastal and Shelf Science*, [dx.doi.org/10.1016/j.ecss.2015.10.018](https://doi.org/10.1016/j.ecss.2015.10.018)

Provided by James Cook University

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