UKZN MACE LAB FEATURED ON 50/50 TV SHOW

UKZN's MACE lab aims to help preserve pristine ocean environments.

Dr Deborah Robertson-Andersson and Mr Gan Moodley with their students from UKZN's MACE Lab were recently featured on the SABC TV programme 50/50 in an Earth Day segment titled Plague of Plastic: KZN.

The MACE lab - Marine Biology, Aquaculture, Conservation Education and Ecophysiology - is based on the Westville Campus in the School of Life Sciences.

According to Plastics Europe (2013), about 1 trillion plastic bags are used and discarded globally each year, with less than 1% being recycled; five million plastic cold drink bottles are used every five minutes in the United States, and California has 38 tons of micro-beads (plastic beads from toothpaste and cleansing products) dumped in its environment annually.

'About 252 million tons of plastic are produced globally every year (plastics Europe, 2013) and unfortunately most plastics don't make it to land fill sites but end up in rivers. Where do those rivers end? Well – like all rivers – the sea,' said Robertson-Andersson.

'In fact about 80 % of plastics found in the oceans come directly from land. And it's not just visible plastics that are causing a problem; as larger items are broken down, the particles of these highly toxic petrochemical-based plastics become an unseen killer, contaminating both rivers and oceans.'

A paper recently published by UKZN researchers Dr David Glassom and T Naidoo revealed that the Durban estuary contained 340 micro-plastic particles (plastic that is smaller than 5 mm in diameter) per litre. Durban, compared to the rest of South Africa, has a high number of rivers which means that the amount of plastic entering our oceans is larger than the rest of the country.

The MACE lab was featured on 50/50 to highlight work it is doing on examining the effects smaller plastic particles have on marine life off Durban.

'In a sample, one in five fish found in the Agulhas current contains plastic,' said Robertson-Andersson. 'Closer to the shore about seven in ten mullet (a common bait or subsistence harvest fish) contain plastics.'

Research done by MSc student Mr Mathew Coote found that micro-fibres take three times longer to pass through fish gut than normal food. Fellow MSc student Ms Gemma Gerber found that mussels cannot separate microplastics from food and will ingest increasing amounts of microplastics with increasing concentrations of microplastics in the water.

Honours student Mr Thembani Mkhize found that sea urchins which are important ecosystem engineers and also a food source, have two pathways for micro-plastic uptake - through their food and through their water vascular system.

'PhD student Mr Travis Kunnen has developed an innovative rapid counting methodology to count bacteria and microplastic particles which saves time quantifying microplastics in the samples,' said Robertson-Andersson.

'We are proud of our students' work as it was featured on the "podium" at scientific conferences, three times in the last year,' she said.

Robertson-Andersson stressed that that despite some disturbing results people can still make a difference. A recent reef clean-up off Vetch's Pier involved 39 people who helped remove 89 kg of rubbish, and in a subsequent clean-up, 139 people removed 400 kg of rubbish from the beach and the reef.

'Yes, this is small at present but we like to think that we have started, and our hope is for this idea to grow, so that all citizens will take ownership for cleaning up our environment to keep it healthy for generations to come,' she added.

Deborah Robertson-Andersson