MEASURING MACRO-PLASTIC IN THE RHINE

The oceans are slowly but surely filling up with plastic. A large portion of this plastic is carried to the oceans by rivers. Paul Vriend, Master's student of Environmental Sciences, developed a fast measuring method that can be applied in rivers like the Rhine.

Vriend used a counting method developed by WUR hydrologist Tim van Emmerik, but modified the method for collecting samples. 'Using nets doesn't work that well in the Rhine, as the concentration of macroplastics is too low. Besides, there is a lot of river traffic; you can't just drop a net in the river for a longer period of time.' On Rotterdam's Erasmus Bridge Vriend ran into another problem. 'Five police vehicles appeared on the bridge, lights flashing. Apparently someone fiddling with nets and ropes on a bridge looks rather suspicious.'

So the net method was discarded. As an alternative, Vriend collected plastic using the Shoreliner, a device that collects waste from the water using a long, floating arm. It is set up in one of the Rotterdam ports and does not interfere with shipping. The plastic thus collected is a good indicator of what comes floating down the Rhine, according to Vriend. It isn't all that much, an average of six kilos per day, but that doesn't mean the Rhine is clean. 'The method we used only measures visible plastic (larger than five cm) that floats in the top 50 centimetres of the water. Smaller plastic particles and plastic that is carried deeper below the surface is not measured. And then there are also a whole lot of microplastics and nanoplastics,' Vriend stresses. In spite of its limitations, the method works fine as a quick way to get a preliminary estimate. **RK**