

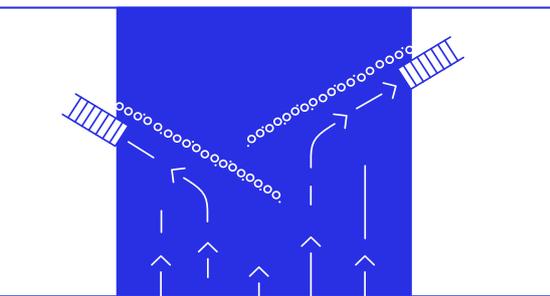
THE GREAT BUBBLE BARRIER



Too much of the waste that our society produces ends up in the water, where it damages marine and human life. Sea turtles and fish get caught up in plastic, ships are obstructed in their paths, and microplastics form a health hazard for the smallest to the largest organisms. This problem is recognised more and more, by both the general public, municipalities, government and the European Union.

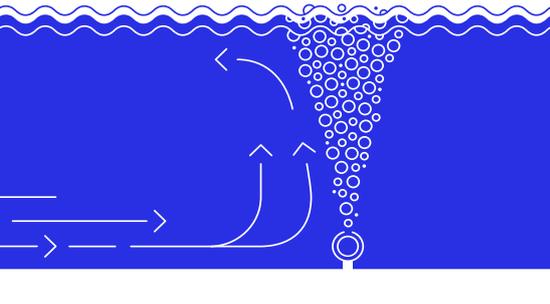
- ✉ Info@thegreatbubblebarrier.com
- 🐦 [@Bubble_Barrier](https://twitter.com/Bubble_Barrier)
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FIGURE 1



Here you see a schematic top view of the river, where two Bubble Barriers block waste by smart use of the current (white arrows).

FIGURE 2



This is a schematic side view of the Great Bubble Barrier. The upward current pushes waste in the water column to the surface, while the turbulence blocks the waste from moving downstream.

We believe plastic waste can be caught before it reaches the oceans. The current solutions that stop waste in the rivers have two major drawbacks; they block ship traffic and/or hinder fish movement. We searched for an elegant solution that blocks waste in the river, but also allows the passage of fish and ships. And we arrived at a very simple idea; a barrier of bubbles.

By placing two bubble barriers (or air screens) diagonally, we block plastics from moving downstream, and make clever use of the current of the river to direct the waste to the banks (Figure 1). We create a bubble barrier by pumping air through a tube with holes, placed on the bottom of the river. The upward current that the bubbles generate brings the waste to the surface, and the turbulence stops the waste from flowing downstream (Figure 2).

The waste gathers on the side of the river, where it can easily be collected with for example a conveyor belt. The fish slalom allows fish to pass the barrier unobstructed. Our system also brings aeration to the water, increasing oxygen levels and improving the health of the ecosystem. With these aspects the Great Bubble Barrier meets all the important conditions: it barely hinders ship traffic, fish movement and the natural workings of the delta.

The Great Bubble Barrier offers a solution for different problem-owners: we can help governments meet changing regulation on waste management in waterways, but also help cities fight plastic problems in their waters, and help regional water authorities to save on their cleanups after high water.

The fact that The Great Bubble Barrier is based on existing technology (its used to block oil spills or to stop salt-water intrusion) makes it easily applicable. Moreover, the best thing is: The Great Bubble Barrier can be applied from the largest rivers to the smallest canals. The visual attractiveness of the bubble barrier makes it easy to attract spectators and increase awareness about the problems posed by the plastic soup.

Our goal is to realise the Great Bubble Barrier at smart locations, to stop as much plastic as possible in its way to the oceans. July 1st 2016, The Great Bubble Barrier won the first prize in the Plastic Free Rivers Makathon organised by PWN and Rijkswaterstaat. This means that we are currently realising a pilot in the river IJssel in the Netherlands, a very exciting step.

While preparing for this pilot, we've found that we are not the only ones believing in this solution for the plastic problem. Recently, the three co-founders of this idea have been listed in the 'DJ100 2017', the list of the 100 Dutch most sustainable young frontrunners. Additionally, the idea was awarded with the public award and the second Industry award by the jury of experts of the Our Oceans Challenge, a sustainable innovation competition organised by a collective from the offshore industry. This kind of support is of major importance for the deployment of the Great Bubble Barrier, to reduce the plastic pollution in both rivers and oceans.

Updates about this pilot and further information about the Great Bubble Barrier can be found on our Facebook page and website: www.thegreatbubblebarrier.com.

Anne Marieke Eveleens
Francis Zoet
Saskia Studer