

## 6. How large are the garbage patches?



Marine Litter in the Pacific Ocean, by <http://creativecommons.org/licenses/by/2.0/> Steven Guerrisi, CC BY 2.0, flickr.com (Photo: Steven Guerrisi)

Today we know of five major ocean gyres, and plastic litter has condensed to form garbage patches in each. Located in the Atlantic, the Indian Ocean and the Pacific, the largest is the North Pacific Gyre, which stretches from the Equator to roughly the 50<sup>th</sup> parallel - where e.g. the Russian island Sakhalin can be found. However, the garbage patch only includes the area at the core of the gyre, where the plastic litter can become extremely dense.

It's difficult to say just where a garbage patch begins, or exactly how much area it covers; to estimate this, the concentration of litter in the water would need to be measured at many different sites. Yet even these measurements are uncertain, since the ocean is in constant motion: currents and winds can make the plastic drift apart or drive them together. Today we can safely say that the garbage patches have an average diameter of several hundreds of kilometres. In the opinion of the AWI experts, it's ultimately irrelevant how large the respective patches are.

The fact is, the litter collects in these patches, which means these ocean regions are hardest hit by plastic pollution. Computer simulations of ocean currents indicate that the gyres are interconnected by smaller currents, which eventually transport a great deal of the litter to the North Pacific Gyre - which is why so much litter gathers there. The simulations also show that there may be a sixth, smaller garbage patch in the Barents Sea to the northeast of Norway. However, this thesis still has to be confirmed by research on site.

Question 1:

Which types of plastic litter are there in the ocean? >

Question 2:

Where does the plastic waste come from? >

Question 3:

How much plastic litter is there in the ocean? >

Question 4:

Where does plastic litter end up? >

Question 5:

What are garbage patches? >

Question 7:

Where do microplastics come from? >

Question 8:

What are the risks of marine plastic? >

Question 9:

What are the economic impacts of marine litter? >

Question 10:

How can we prevent the spread of marine litter? >