

Science for Environment Policy

Floating litter in the Black Sea: abundance and composition

Reliable data regarding marine debris pollution in the Black Sea are lacking. This study provides the first account of the abundance and types of litter floating in the north-western part of the Sea. This information will help to develop effective solutions for marine litter in the region and therefore to achieve the EU objective of 'Good Environmental Status' by 2020.

Marine litter is a growing problem that poses a threat to aquatic wildlife, human health and the economy. However, attempts to understand the scale of the problem have been sporadic. In several regions, the occurrence, abundance and distribution of marine litter remain unknown. The Black Sea is one such example.

This expanse of water is particularly vulnerable to pollution, as it is almost completely enclosed, surrounded by industrialised countries, home to shipping routes, fisheries and tourist activities, and a large drainage basin. Although a known vulnerable area, data on marine litter in the region — and in particular debris floating on the surface — is lacking.

This study therefore attempted to quantify floating macrodebris in the Black Sea, specifically in the north-western zone, through a visual survey. The survey was conducted during a research cruise in June 2014 as part of the EU funded project [CoCoNet](#)¹. The researchers assessed all floating debris larger than 2 cm in an area off the Romanian coast, between the Danube delta and port of Constanta.

All observations were made by the same observer during the daytime and in good weather conditions. The size, type and position of debris were recorded. Items were split into two categories: anthropogenic marine debris, which included styrofoam and plastic, and natural marine debris, which was subdivided into wood, algae and others. The densities of floating debris were estimated using [Black Sea Commission](#) recommended methodology.

Overall, 30 sampling areas were surveyed during the cruise, covering an overall length of 186 km, and a total of 225 floating items were sighted. The most abundant debris was natural in most locations, likely because the region is close to the Danube delta, the best preserved river delta in Europe². Most of the objects sighted were pieces of wood or other debris from rivers (75.5%). However, plastics were by far the most abundant type of man-made litter, comprising over 89% of all anthropogenic items sighted.

Although natural litter outnumbered anthropogenic equivalents, the latter still represents a significant problem. The authors say the amount of man-made litter found was high and comparable to reports from other offshore and coastal locations, including the Mediterranean Sea.

This study sheds new light on floating debris in Romanian waters, finding litter densities peaking at almost 136 items per square kilometre in some areas. However, data is still lacking compared to other regions and these results are just a baseline snapshot of the situation. The authors recommend regular basin wide surveys to fully quantify the problem and to identify the main sources and accumulation areas. This will pave the way for measures to mitigate the problem.

The researchers also say that the enforcement of regional strategies for marine litter should be improved, as should international cooperation. Regardless of where it comes from, once litter arrives in the marine environment, currents and winds transport it across borders. Addressing litter in the Black Sea therefore requires the collaboration of all bordering states.



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