

Plastic Free Danube: Composition of Macro-Plastic Waste in and along the Danube River

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Worldwide the demand for plastics is still unbroken. The material can be found in almost all areas of our daily life. The increasing production numbers are accompanied by an increased entry of plastics into the environment. Plastic waste is on everyone's lips these days, especially with regard to the pollution of the oceans. Rivers are recognised as the main pathways for marine pollution (e.g. Great Pacific Garbage Patch). However, the sources and origins of plastic litter as well as transport behaviour and environmental risks in fluvial systems are largely unknown. This is not least due to the lack of standardized monitoring methods. Furthermore, most existing studies address micro plastics in running waters.

The aim of the EDRF funded project *PlasticFreeDanube* is therefore to establish a sound knowledge base on the occurrence and composition of macro-plastic waste (> 5mm) in and along the Danube River. On that basis, appropriate prevention measures against plastic litter can be derived. In addition, the analysis of transport behaviour and environmental influences is also in focus.

Within the framework of the project, a standardised sampling and sorting protocol for riverine systems was developed for the present issue. Volunteers have already tested them in collection campaigns in the Donau-Auen National Park (NPDA). In total 13 samples of different collection zones were used for subsequent sorting analyses. The results show a high percentage of macro-plastic that can be attributed to littering (mainly beverage bottles – up to 40wt%, but also packaging, take-away packs, etc.). It can also be assumed that the majority of the collected plastic waste is discharged as flotsam from the upper reaches of the Danube in the (bank) area of the national park. Targeted and already implemented sensitization measures have led to a significant reduction in the volume of waste in this Danube region in recent years. Visitors of the NPDA generally take their waste with them.