



PROCEDURE

This model approach provides, for the first time, a tool for identifying dominant sources and pathways. Furthermore, the necessary facts are made available for taking action that is needed to reduce or avoid marine litter. The advantage of the model is in particular the accompanying database, which enables easy and flexible adjustment of variables and calculations in the model. This also aids reproducibility and transparency of the calculations. An extension of the model to other seas, applications and discharge paths is, on principle, possible.

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From Land to Sea – a model for recording land-based plastic waste

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Facts for making sound decisions



STARTING SITUATION AND TARGETS

Marine litter, in other words the accumulation of waste in the world's seas, constitutes an ecological, economic and social challenge at global level. In the debate on this problem, plastics – and especially plastic waste – play a major role compared with other materials.

Before now, it has not been possible to establish accurately enough with the help of studies what quantities of not properly disposed waste get into the sea and how the litter gets there in the first place. If specific measures are to be taken to prevent or reduce the amount of waste getting into the sea, it is necessary to establish the discharge pathways and their quantitative importance.

On behalf of the BKV and with the support of the FCIO, IK, PlasticsEurope and VDMA, Consultic has presented a model approach for documenting land-based plastic waste with regard to its discharge pathways into the seas. In the first step, the methodology is being applied to discharges into the North Sea. The aim of the project is, by adopting a methodical approach, to systematically document, structure and quantify the main discharge pathways for plastics.

RESULTS

Total discharges from Germany into the North Sea:



- After evaluation of all the data and information so far covered by the model, a total of around 1,310 metric tons (average per year) of plastics get into the North Sea from Germany. Of this, microplastics account for around 370 metric tons and macroplastics for around 940 metric tons.
- Sensitivity analyses of model factors that play a key role for the discharge into the North Sea show that the attained results for the minimum to maximum value can fluctuate in a bandwidth up to a factor of 10.

CONTENT

Methodological approach:

- Spatial differentiation between discharges from inland waters and discharges from coastal regions
- Taking account of European statistics, regional subdivisions of coastal regions in line with European classification, population density, socio-economic data
- Identification of the discharge paths

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Calculation of the discharges of the relevant discharge path, taking account of all this information