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Water Quality Modelling – Developing a Data Input Set Based on an Emission Inventory

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HS5.11: Water quality at the catchment scale: Prediction and management of nutrient and sediment fluxes

Title: Water Quality Modelling – Developing a Data Input Set Based on an Emission Inventory

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Abstract
To enable precise characterisation of the immission situations for watercourses, it is first necessary to characterise the emissions in the catchment area. The data required to yield useful information on emissions can be collected via monitoring (e.g. at waste water treatment plant outlet, run-off of surface waters, run-off of soil moisture content) and can also be generated as the result of running a suitable model (e.g. by sewer simulation modelling). The combined approach of monitoring and modelling permits development of an emission inventory. This inventory can be used as a data input set to run a water quality model for rivers which, when used in conjunction with valid methods of river monitoring (routine spot check program, online monitoring network, sediment studies), provides valuable information about the immission situation (immission inventory).

It will be presented how the Erftverband, a water management association operating in the Erft river catchment in Germany, has established an emission inventory for the entire Erft basin. This inventory provides essential data input to run the water quality model of the German Water Association, generally known as the DWA Water Quality Model. It will be demonstrated that, using this inventory, the DWA Water Quality Model, applied to the Erft river basin as the Erft water quality model, constitutes a valuable tool in support of water management planning.