



Integrating river water quality processes in catchment modelling for ecological risk assessment

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The management and control of pollution at catchment level needs integration of all sources of pollution towards the river basin, and the consideration of the transport and transformation processes in the receiving water. Modelling can be of help in understanding the problem and in evaluating possible solutions. Since the river basins form the logic unit, catchment modelling are the best backbone for such integrating modelling. An illustration is given with the developments around the Soil and Water Assessment Tool (SWAT) to quantify the link between pressures and impacts on the river water quality status. SWAT operates on the river basin scale, includes processes for the assessment of complex diffuse pollution and is open-source, which allows for site-specific modifications to the source and easy linkage to other hydroinformatics tools. For a proper modelling of the water quality status in the river, recent developments are done in SWAT to allow for simulating of problems such as oxygen depletion, eutrophication, sediment transport or presence of toxic components such as pesticides. In addition, concepts to link the chemical water quality to ecological risk assessment are presented.