Abstract

Hydro-ecological modelling: its contribution to nature-oriented flood damage prevention

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Hydro-ecological modelling tools are integrated into the nofdp IDSS being a supportive tool for planning nature-oriented flood damage prevention measures.

The term hydro-ecological modelling as used here refers to the simulation or prediction of the suitability of a given site for the establishment and growth of certain riverine plants, plant communities (= vegetation types) or animals. Most often, this suitability is expressed as likelihood of occurrence of the organisms considered. It may be provided as absolute values (0/1) or as percentages. The aim is to predict changes in the composi-tion of organisms due to changes of environmental factors. In hydro-ecological model-ling such changes mainly refer to the water regime, e.g. changes of ground or river wa-ter levels.

Hydro-ecological modelling is relevant for measures applying a nature-oriented ap-proach for flood damage prevention because such measures often result in changes of land-use (e.g. cropland being transformed to grassland), landscape morphology (e.g. re-meandering of the river course) or of water levels (e.g. dyke relocation). To identify and quantify the effect of such changes hydro-ecological modelling provides predictions that can be used as basis for an evaluation of the effect.

The presentation will give an overview of commonly used models. Furthermore, some background information will be given for the two modelling tools implemented into the nofdp IDSS. Finally, the applicability of hydro-ecological models in practice will be briefly discussed.