
Validation of ecological models to support water management: integration of mathematical, ecological and management-oriented criteria

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Ecological models are often only validated based on one or more mathematical criteria. This study compared several criteria (Correctly Classified Instances, Cohen's Kappa, . . .) on the basis of a modelling study predicting macro invertebrates in rivers. However, water managers are moreover interested in the ecological validity as well, since this provides the necessary backup needed in discussions among stakeholders. For this, the ecological relevance of generated models was evaluated on the basis of ecological information from literature. Thirdly, the simplicity and transparency of models and their convenience to be used for simulation is crucial. The latter was tested on a practical simulation exercise. The three different model validation approaches are discussed and reflections are made on the need for their integration during model development and optimization.

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