

Reservoir Water Quality Modeling



Reservoir water quality modeling describes flow and mixing processes and calculates water qualities. Thus reservoir water quality models have become indispensable as established tools in the development of programs of measures and management plans for natural bodies of water or reservoirs.

Although flow and mixing processes generally take place three-dimensionally, they can be depicted in one or two dimensions with an adequate degree of precision for real-world practice, depending on the type of water body. According to the task, the time frame for the water quality modeling can be set as short or long-term. Superior spatial and temporal resolution is typical for short-term simulations. The diffusion of pollutant plumes after accidents or the calculation of critical pollutant concentrations at intake locations are exemplary of such short-term simulations. Long-term simulations with reduced spatial and temporal resolution are, for example, useful in predicting trophic state development.

For reservoir water quality modeling, we rely on the DYRESM and CAEDYM model systems as well as RMA-10 (in cooperation with Hamburg University of Technology - TUHH).

Our successful developer team of IT experts, mathematicians and GIS specialists develop customized solutions when needed, coordinated with the specifics of the respective standing body of water and the task at hand. For sustainable water resources management and precautionary water protection.

Services

- Flow simulation
- Material transport modeling
- Water quality modeling
- Prediction of trophic states

Modeling software used

- Flow simulation: RMA-10 (Resource Management Associates, CA, USA)
- Water quality modeling: DYRESM + CAEDYM (Centre for Water Research, University of Western Australia)

- 1 Sustainable river management
- 2 Water quality simulation with DYRESM Investigated parameters: left: dissolved oxygen (mg/l), right: chlorophyll-a (μg/l)