Using Artificial Neural Networks (ANNs) to Predict Reservoir Total Phosphorus Concentration

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Abstract

A model that predicts the monthly water quality for a subtropical reservoir was constructed based on an artificial neural networks (ANNs), and is a computational tool that is useful for evaluating systems. We extracted four significant input variables from 15 input variables, including watershed chemical loads, precipitation, inflow, and outflow. In this study, back-propagation neural network (BPNN) was adopted to estimate the total phosphorous (TP) concentration in a reservoir. The BPNN yields more accurate predictive capability, compared to traditional multilinear regression (MLR) models.

Keyword：water quality, back-propagation neural network (BPNN), total phosphorous (TP).