

Assessing Ecological Risk of Chemicals in Lake Suwa: A Modeling Approach

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Abstract

The Comprehensive Aquatic System Model for Lake Suwa, CASM_SUWA, was developed and evaluated to examine its applicability for site-specific ecological risk assessment of chemicals. CASM_SUWA is a bioenergetic ecosystem effects model that simulates the daily production dynamics of populations, including predator-prey interactions, through time in relation to daily change of light intensity, water temperature, and nutrients availability. A reasonable deterministic model simulation that represents the characteristics of the Lake Suwa ecosystem was established by calibrating the model parameters. The risk estimation of linear alkylbenzene sulfonates, LAS, on the model species implies that the model could provide additional information to improve ecological risk assessment of chemicals in aquatic ecosystems.